April
1927

Successful Construction Methods

McGraw-Hill Publishing Company, Inc., New York, N. Y.

Setting Stone
Cathedral of St. John the Divine
New York City

A MONTHLY PICTORIAL OF FIELD PRACTICE AND EQUIPMENT

General Construction · Highways · Buildings · Engineering · Industrial

Year in—year out!

CITY	Number of years in which streets were paved with TEXACO ASPHALT
Topeka, Kan.	16
Tulsa, Okla.	15
Youngstown, O.	10
Yonkers, N. Y.	10
New York City	9
Baltimore, Md.	8
Akron, O.	8
Newark, N. J.	8
Wichita, Kan.	8
Chicago	7

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Successful

Construction

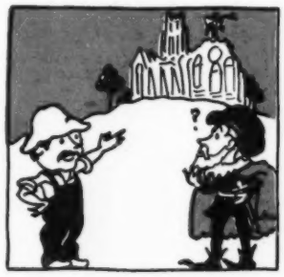
Methods

Hitting the High Spots

IN order to identify ourselves more closely with the great industry which we serve, the name of this magazine is to be changed. You may have noticed that the word "Construction" has been growing in importance on our cover for the last few months and the word "Successful" has been gradually fading away.

After this issue "Successful" will fade out entirely and the publication will be known henceforth as "Construction Methods." And this might be a good place to state that the dropping of the word "Successful" does not for one moment suggest or admit any lack of success. Quite the contrary. We simply feel that this magazine can do even better and more effective work in its chosen field if it carries the word "Construction" at its masthead. We are proud of the fact that we belong to the construction industry and we don't care who knows it.

SO much for the future. Now let's take a look at the magazine you hold in your hand. First of all is the cover which shows a detail of the work on the Cathedral of St. John the Divine in New York, one of the finest structures now under way in the United States. And the Blue Book (pages 9-12), that section which we reserve each month for notable jobs in which the whole industry takes pride, shows the greatest hotel in the world, which is now nearing completion in Chicago. Look it over. It's a real job.



Probably you realize that spring is here and it's time to settle down to work. Just to help drive home that useful thought we have provided some pictures of the annual spring cleaning that every wise contractor indulges in at this time of the year. They were taken at Gus Scharl's headquarters in Muskegon, Michigan, and you will find them on 20 and 21. Incidentally one of these pictures shows a new and interesting bit of contractor's equipment, a portable barn on wheels. It will hold twenty horses and they will be hauled in state right to the scene of their labors. Since the men have taken to driving to the job in their cars, the horses have felt that something should be done to make life easier for them. Gus Scharl being a just man, has given the matter due consideration and the mobile barn is the result.

HOW many of you know how many different species of motorized equipment are in use in highway maintenance work? We were greatly surprised when we looked into the subject recently, and are passing the surprise along to you on pages 30-33. Look 'em over and if you have any additions to the collection send them along. Perhaps we will get enough for another chapter.

One of the most interesting jobs now under way is the construction of the Carquinez Strait bridge near San Francisco. A few days ago they picked up a 750-ton steel span with the aid of counterweights and slipped it into position without the flicker of an eyelash.

THE Cascade tunnel is with us this month (pages 6-8) and we recommend to you the picture of the camp. It looks like an ideal place for a vacation.

Do you like boating? If so, you can get a job afloat and still remain in the construction business. Try page 16 where you will find a 500-ft. ship engaged in sailing Lake Michigan on construction business bent. Or, if you like your boating on safer and quieter waters, join the crane on pages 24 and 25, which has been spending the winter on the bosom of a placid New England mill pond.

One of the great advantages of this construction industry is that it is well stocked with variety— the well-known spice of life. Maybe that's why construction men the world over have so much pep.

—answering your Questions regarding High-Early-Strength Concrete

Made with standard *Universal* (not special) cement

Question	Answer
1. What is High-Early-Strength *Universal* Concrete?	Concrete with a *3-day* strength equal to the *28-day* strength of ordinary concrete. It is made by using thoroly tested methods and standard (not special) *Universal* cement.
2. What is its chief advantage?	Saves time! Concrete for foundations, buildings, sidewalks, pavements and improvements of all kinds is made ready for use in *3 days* instead of *3 weeks*.
3. What additional advantage is there?	Increases strength! Concrete so made is not only as strong in *3 days* as ordinary concrete is in *28 days*, but is permanently *better* and *stronger* concrete. (See diagram.)
4. Is its use restricted to certain kinds of jobs?	No. High-Early Strength *Universal* Concrete has been used on many kinds of concrete jobs.
5. Has High-Early-Strength *Universal* Concrete been fully tested?	Thousands of laboratory tests, years of experiment and hundreds of actual jobs prove the value of High-Early-Strength *Universal* Concrete.
6. Is a special grade of *Universal* cement required?	No. Standard *Universal* cement is used—identically the same quality *Universal* cement and at the same price as used in ordinary *28-day* concrete.
7. What other advantage does High-Early-Strength *Universal* Concrete offer?	It is unnecessary to stock extra brand of material as High-Early-Strength Concrete is obtained with the same quality *Universal* cement used for ordinary construction.
8. Where can I get detailed information on High-Early-Strength *Universal* Concrete?	Full details for use on any concrete work will be sent promptly on receipt of the coupon below.

Without obligation, please send me detailed information on methods for securing strong concrete in 3 days with standard Universal cement, which, being standard—not special—sells at the usual price.

Name .....

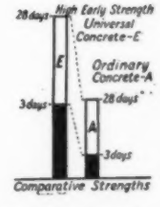
Address .....

SM 4-27

Universal Portland Cement Co.

Chicago Pittsburgh Minneapolis Duluth Cleveland Columbus New York

Concrete for Permanence



High-Early-Strength Concrete "E" made by using special methods and standard *Universal* (not special) cement is permanently *better* and *stronger* than concrete as ordinarily produced. This concrete can be made as workable as desired. More detailed information for use on any job furnished promptly on request. Just use the coupon.

Successful
Construction
Methods

McGraw-Hill
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JAMES H. MCGRAW, *President*
E. J. MEHREN, *Vice-President*

A Monthly Pictorial of Field Practice and Equipment
GENERAL CONSTRUCTION—HIGHWAYS—BUILDINGS
ENGINEERING—INDUSTRIAL

WILLIAM JABINE
Editor

VOLUME 9 NEW YORK, APRIL, 1927 NUMBER 4

Cat Catches Millions of Mice

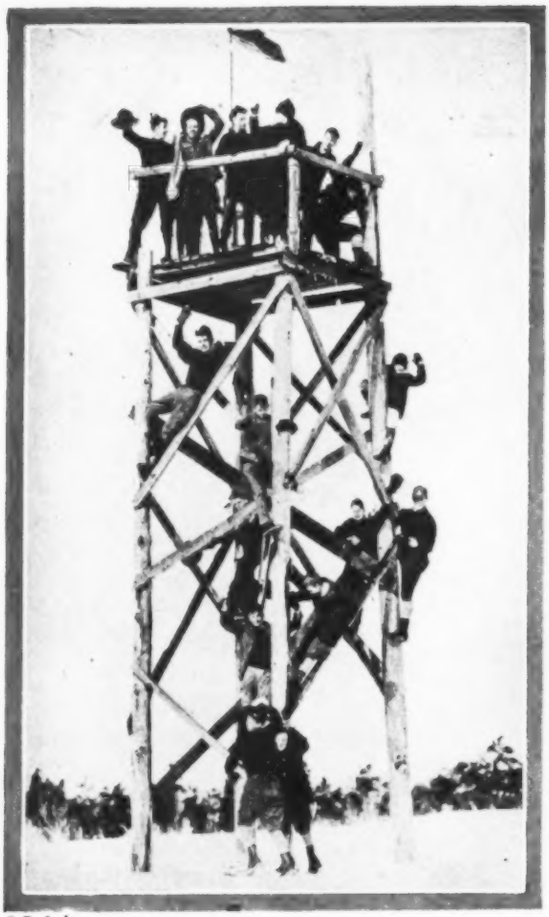
FOR years construction men have been referring to their Caterpillar tractors as "Cats" so that it seems fitting that in the recent war on mice conducted in the vicinity of Bakersfield, California, "Cats" should have played a leading part in the destruction of the invading horde of rodents.

The outfit shown in the photograph at the bottom of this page, consisting of a Caterpillar 60 hauling an Austin Mammoth grader, was called into action and dug about 35 miles of trench in which poisoned grain was laid in order to stop the mice. This method of fighting proved successful, and an estimate made by E. Raymond Hall of the University of California, showed an average of 84,700 dead mice to the mile. This would put the "Cat's" total at something like 4,000,000 mice which establishes a record which is likely to stand for many years to come.

The other two photographs were taken during the progress of the war. The picture at the left shows a typical section of the trench dug by the tractor and grader. The smaller photograph at the right shows the destruction caused by the mice. It was taken in a warehouse and gives a good idea of the way in which the mice ruined sacked grain.

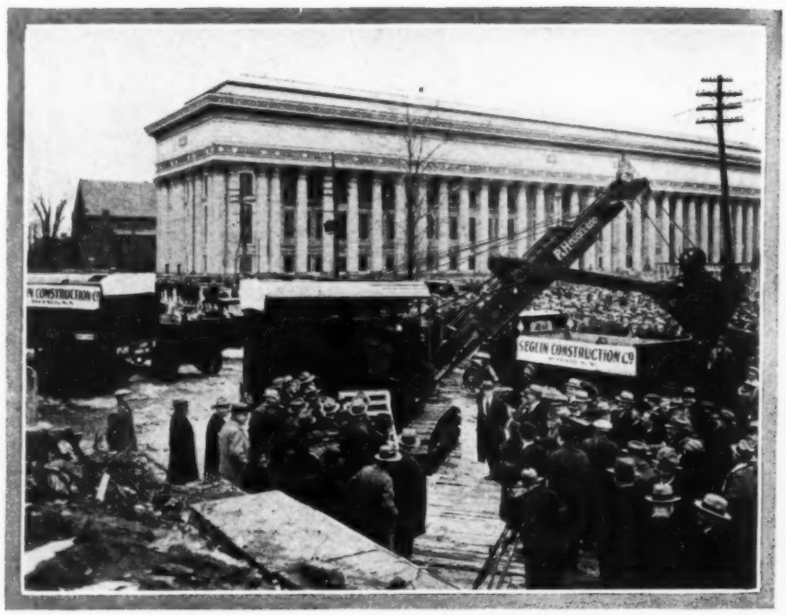
The mouse fighters, the ditch they dug and the machine that dug it

Celebrities



©P & A

Some promising recruits for the construction business are shown in this photograph. They are boy scouts from Dover, Mass., who built this watch tower for fire protection

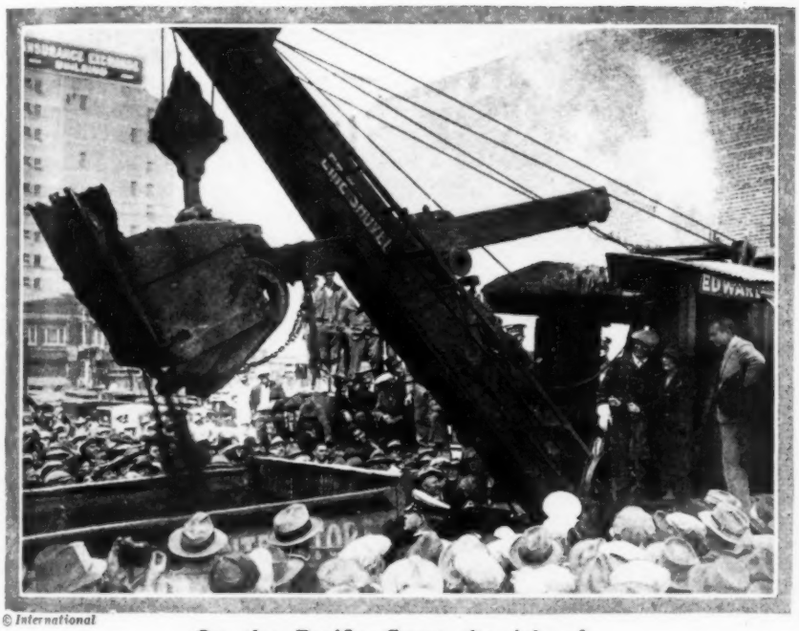


Al Smith, Governor of New York, breaking ground for the new state office building at Albany with the aid of a P & H shovel

© International

This is one of the buildings at Canberra, the new Capital of Australia, which will be dedicated by the Duke of York. This structure will house the Federal Parliament

ies and Shovels

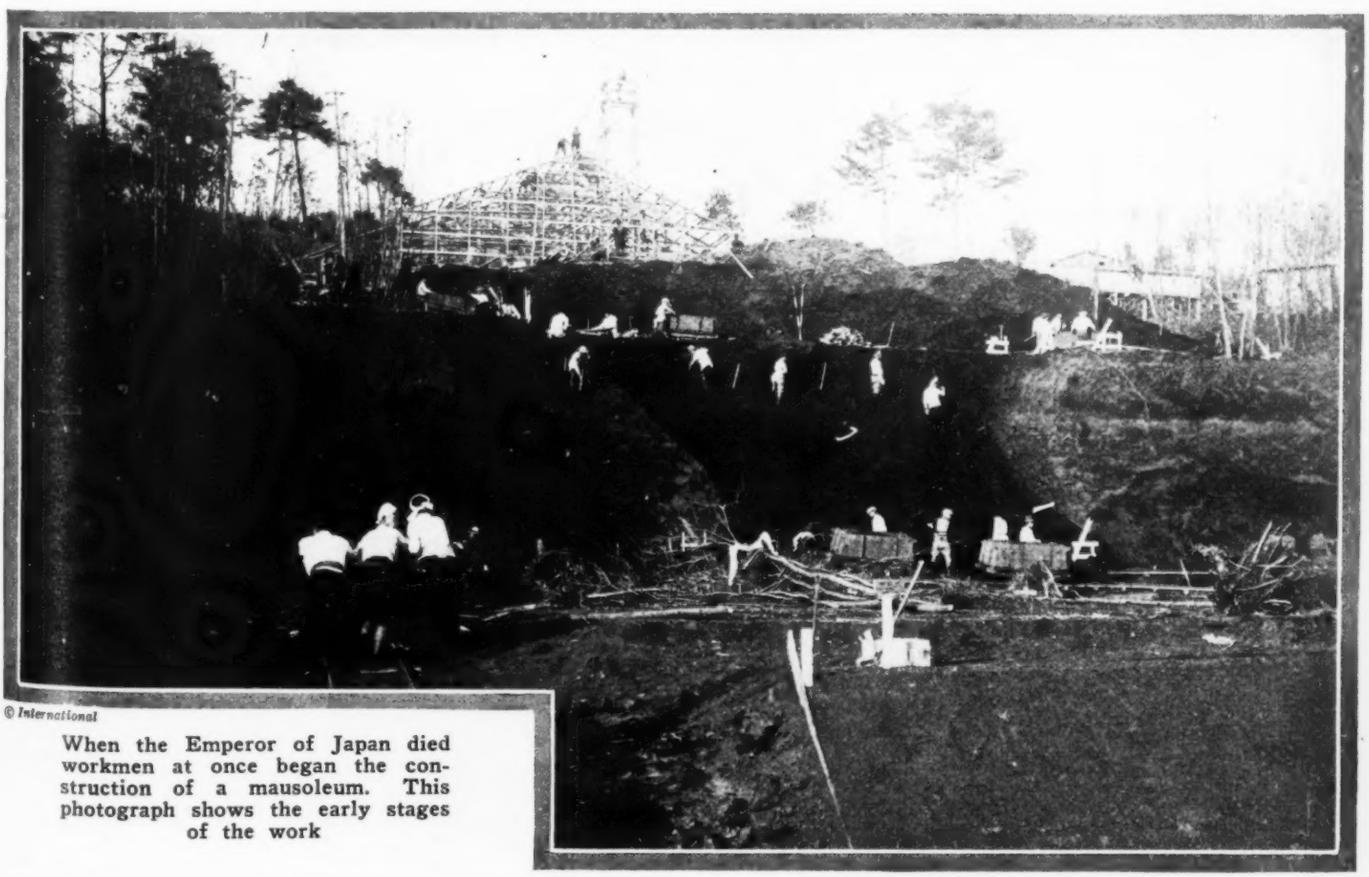


© International

On the Pacific Coast the job of scooping up the first dipperful of earth on the site of the Universal Artists Theater was entrusted to Mary Pickford and an Erie shovel

© P & A

A girl bricklayer hard at work on a building in Germany, where women are invading many occupations hitherto left to the men



© International

When the Emperor of Japan died workmen at once began the construction of a mausoleum. This photograph shows the early stages of the work

Cutting Through the Cascades

THE Cascade tunnel, nearly 8 miles in length, is one of the noteworthy construction jobs now under way. It will take the main line of the Great Northern Railway through the summit of the Cascade Mountains in Washington and, as has been recorded recently, all previous drifting records have been beaten by the crews engaged in the work.

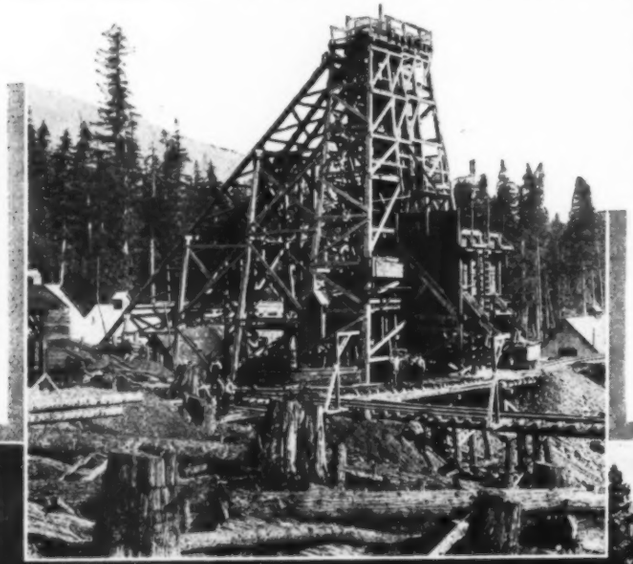
The West Portal camp is at Scenic, the East Portal camp is at Berne and a shaft 659 ft. deep has been sunk in Mill Creek Valley. This shaft is the only outside access to the tunnel in its entire length. It divides the tunnel into a west section of 5.37 miles and an east section of 2.41 miles. A pioneer bore with crosscuts at 1,500-ft. intervals is used to speed progress in the longer section, and the shorter section is being driven with center headings from both ends. The contractors are A. Guthrie & Co., Inc., of St. Paul, Minn., and they began work in December, 1925. It is expected that the tunnel will be finished next year.

At the west end, Sullivan drill carriages mounting 4 drills are used in all headings. At the east portal, the drills are mounted on a horizontal bar, and the first row of holes is drilled from on top the muck pile. The rock encountered has been granite of various degrees of hardness and tightness with occasional seams of clay and shale.

After trial of several machines, Myers-Whaley mucking machines were selected, and are now used at all faces. Marion power shovels, model 41, with shortened boom and dipper stick, are used in tunnel enlargement at the east and west end. A Marion 20 is working west from the Mill Creek shaft. The shovels have crawler treads which span the 36-in. track and make jack arms unnecessary, as the crawlers rest on extra long ties.

Double track extends back a train length or more from each face. The 4 rails are laid to form 3 tracks, the 2 middle rails being set the gage distance apart. This gage is 24-in. in the headings. Mucking machines and drill carriages run on the middle track. When the pioneer bore gets a sufficient distance ahead of a crosscut, the outside rails are taken up, and the middle track is left. Koppel cars of 50-cu.ft. capacity are used in the headings, and 6-yd. Koppels in the enlarged tunnel.

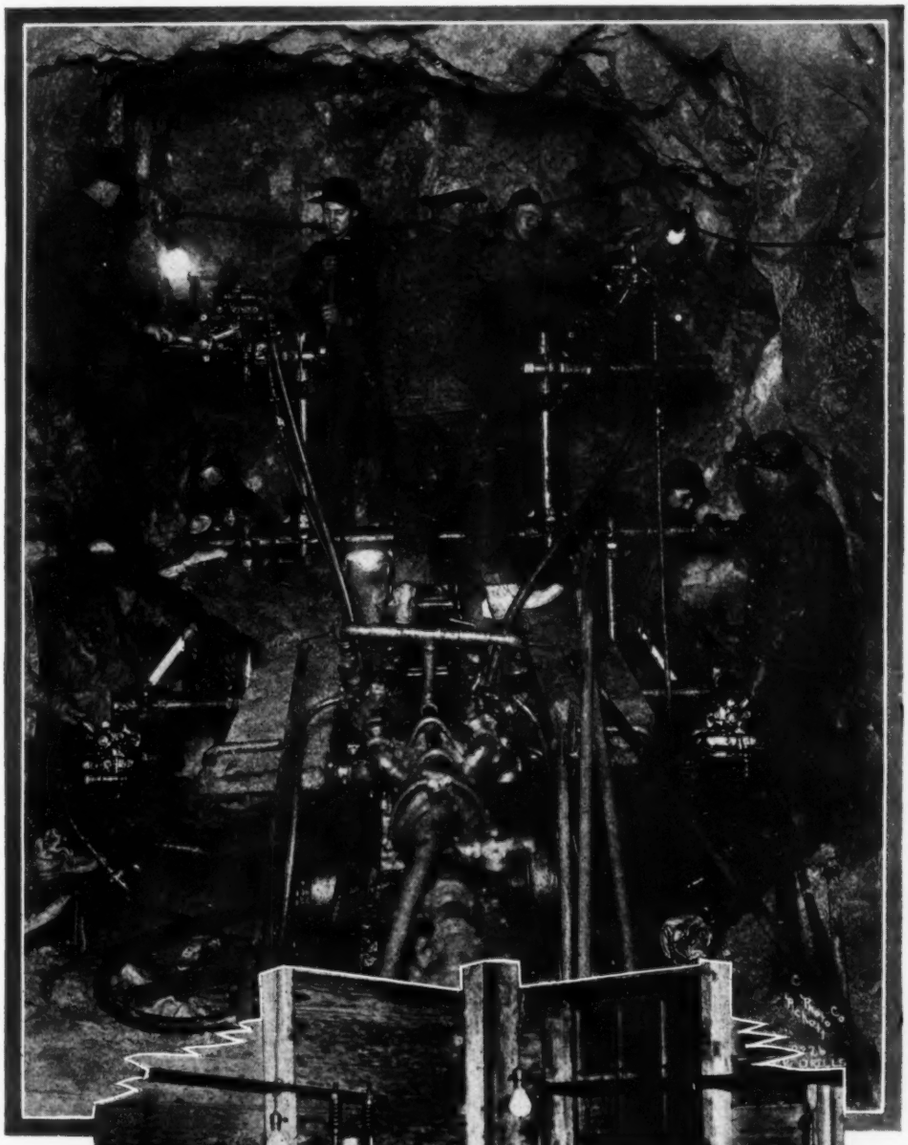
Denver 17 drifters and Denver stopers are in use at Scenic and Mill Creek. Ingersoll-Rand drills are employed in the east end. Sharpening is done by Sullivan equipment.



The Mill Creek shaft is shown at the left while the photograph below gives a good idea of the splendid camp at the West Portal

The air is carried in through 8-in. pipe with Dayton couplings. The pipe size is reduced to 4-in. in the crosscuts and to 2-in. in the headings. The pioneer bore serves as the fresh air duct. Blowers of 5,000-cu.ft. capacity are installed at each 5,000 ft. of advance. These act as booster stations.

J. R. W. Davis, chief engineer of the Great Northern Rail-



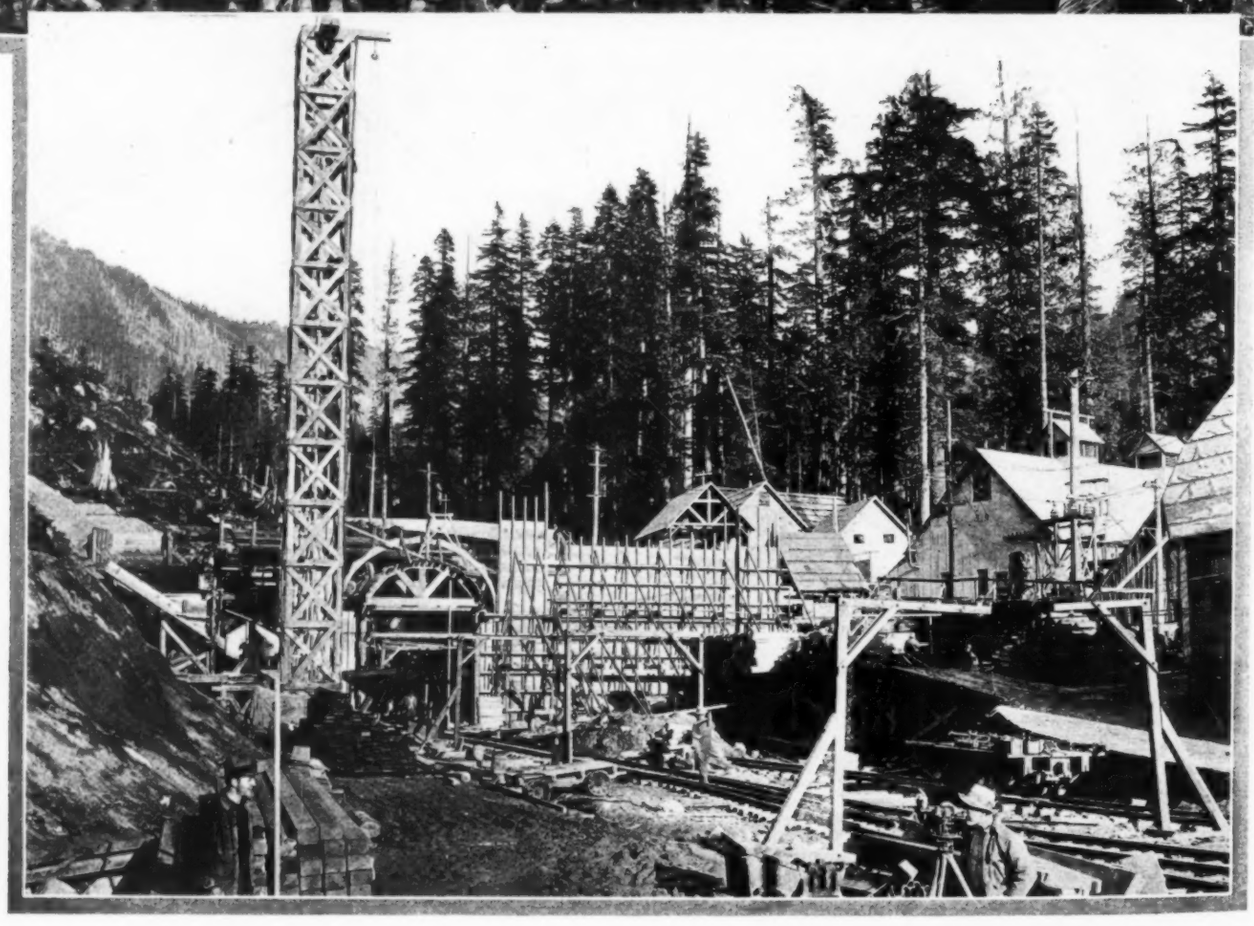
The photograph at the right shows the work in the Pioneer tunnel near the West Portal. This photograph is typical of the work in the headings

The picture at the bottom of the page shows the blacksmith shop where the drill steel is sharpened. Sullivan oil furnaces and sharpeners are used for this work

way Co., St. Paul, has general charge of the work. Col. Frederick Mears, assistant chief engineer, lines west, Seattle, is directly in charge of operations. M. J. C. Andrews is resident engineer. For A. Guthrie and Co. J. C. Baxter, vice-president, St. Paul, exercises general supervision. R. F. Hoffmark is general superintendent. His assistant is W. E. Conroy. The superintendents in charge of the 3 sections are: Scenic, H. J. King; Mill Creek, F. J. Kane; Berne, C. J. Jones. J. M. Renwick is master mechanic.

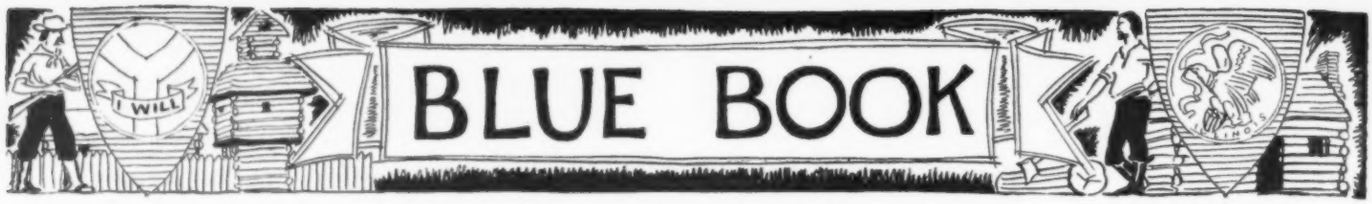
The group just below includes several executives of A. Guthrie & Co., including from left to right: M. J. C. Andrews, C. F. Folliett, W. E. Conroy, R. F. Hoffmark, H. L. Mundy. The men at the right are the bosses of the crew which broke the world's record last October

They are from left to right: H. J. King, Supt.; Andy Olson, Frank Robertson, Claude Dahlquist, John Watters, S. M. Smyth, Jack D. Harrington, R. D. Keerl. The middle photograph shows the day shift of the record-breaking gang, and the picture at the bottom shows the west Portal at Scenic



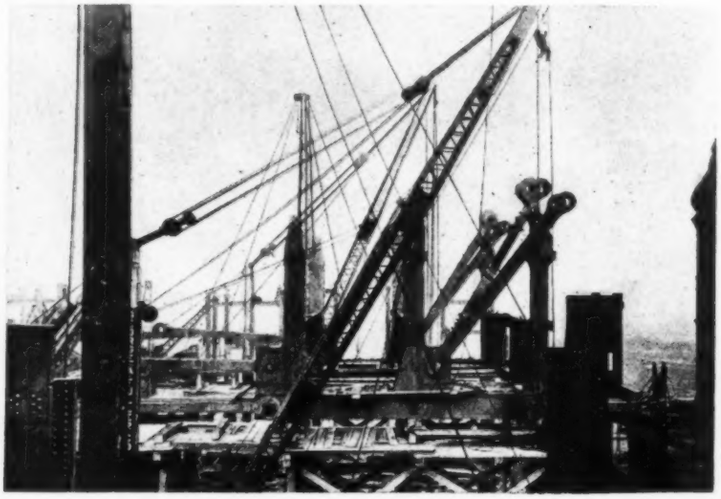
The Stevens, Chicago—The World's Largest Hotel

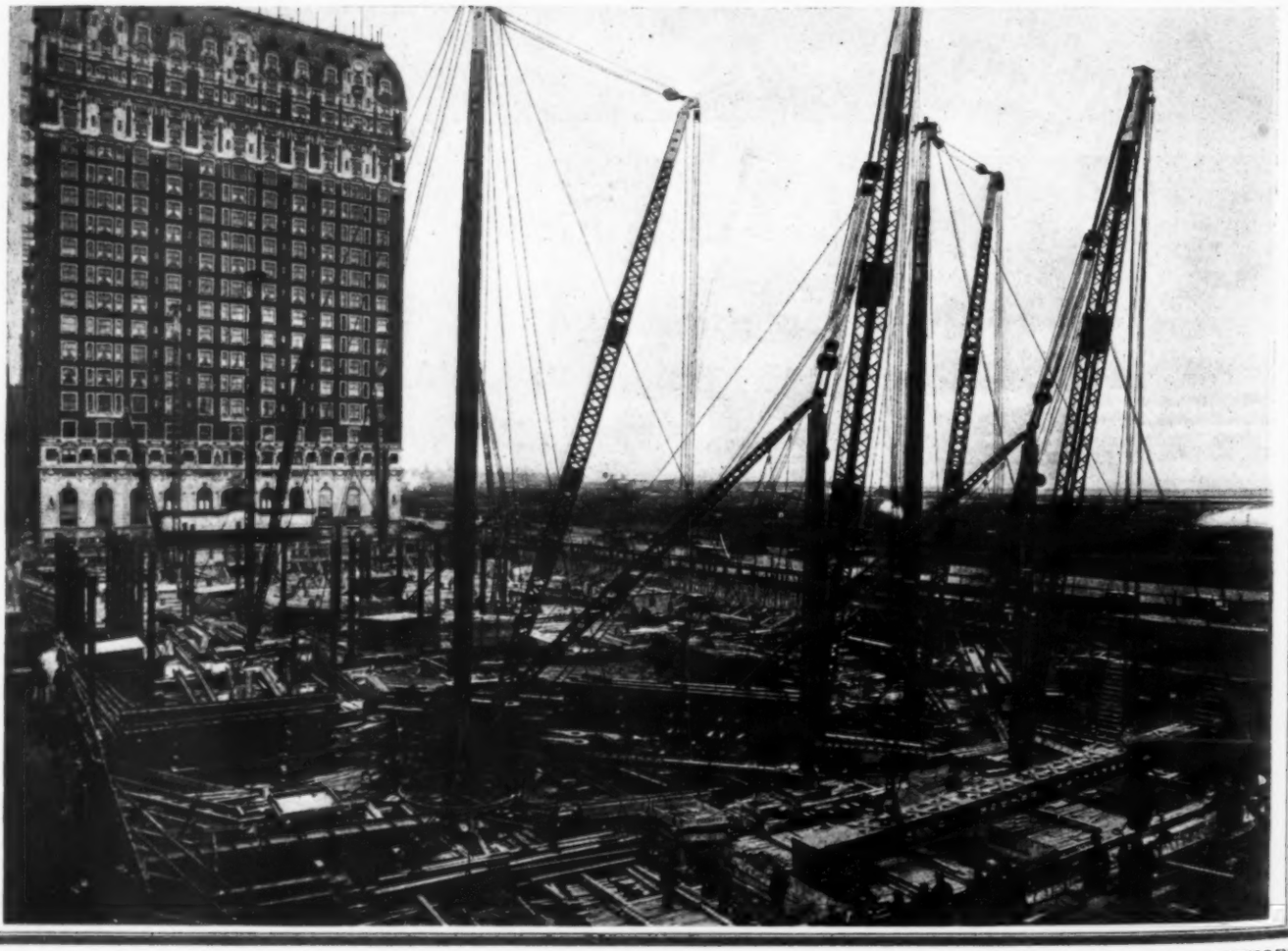
The largest hotel in the world soon will open its doors in Chicago. The Stevens on Michigan Boulevard will have 3,000 rooms. The great structure was built by the George A. Fuller Co. and was begun the summer of 1925. Holabird & Roche of Chicago are the architects. The picture at the bottom of this page was taken on August 14, 1925, and shows the excavation well under way. The upper photograph shows the laying of the cornerstone on March 16, 1926. The three men on the platform are from left to right: R. W. Stevens, J. W. Stevens and E. S. Belden, vice-president of the George A. Fuller Co. The man at the extreme right with his coat collar turned up is C. W. Dolle, superintendent.



The Stevens, Chicago—World's Largest Hotel

The small photographs on these two pages show details of the placing of the great 86-ft. trusses which will form the roof of the second floor and will support the columns of the 22 floors above. Three of these photographs were taken on January 14, 1926, when preparations were being made for the setting of the big trusses. The fourth picture shows four trusses in place.

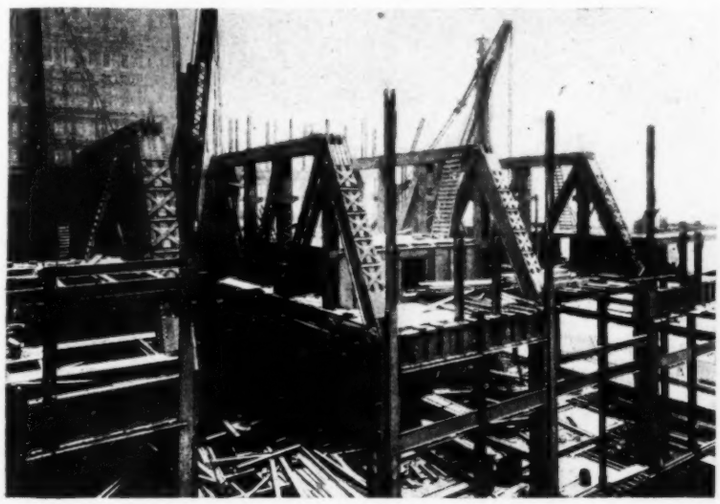


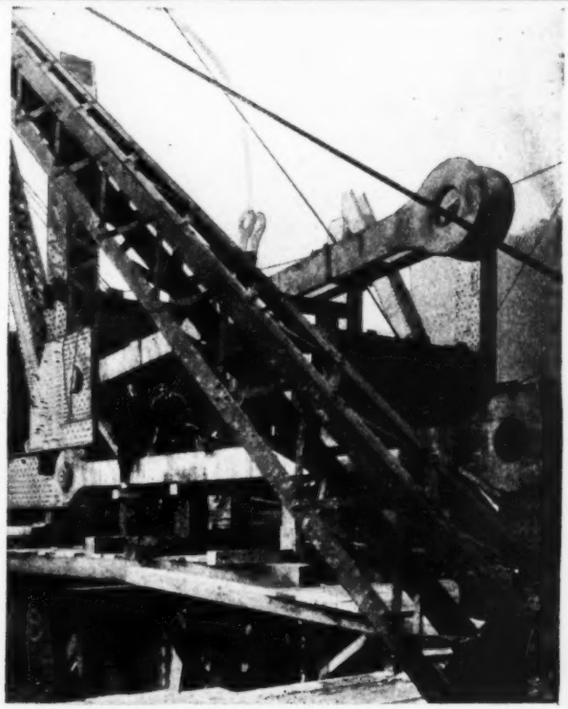


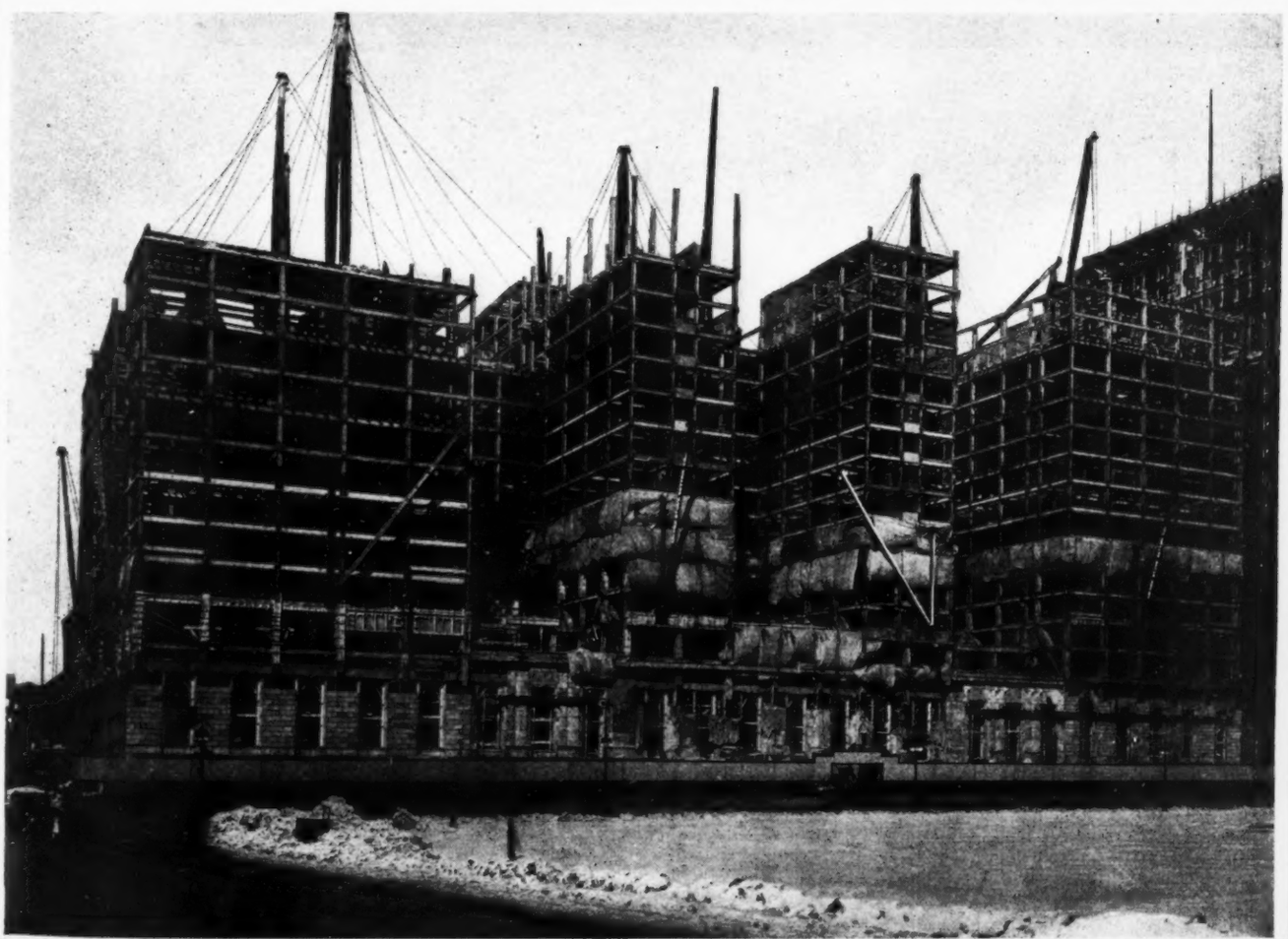
BLUE BOOK

The Stevens, Chicago— World's Largest Hotel

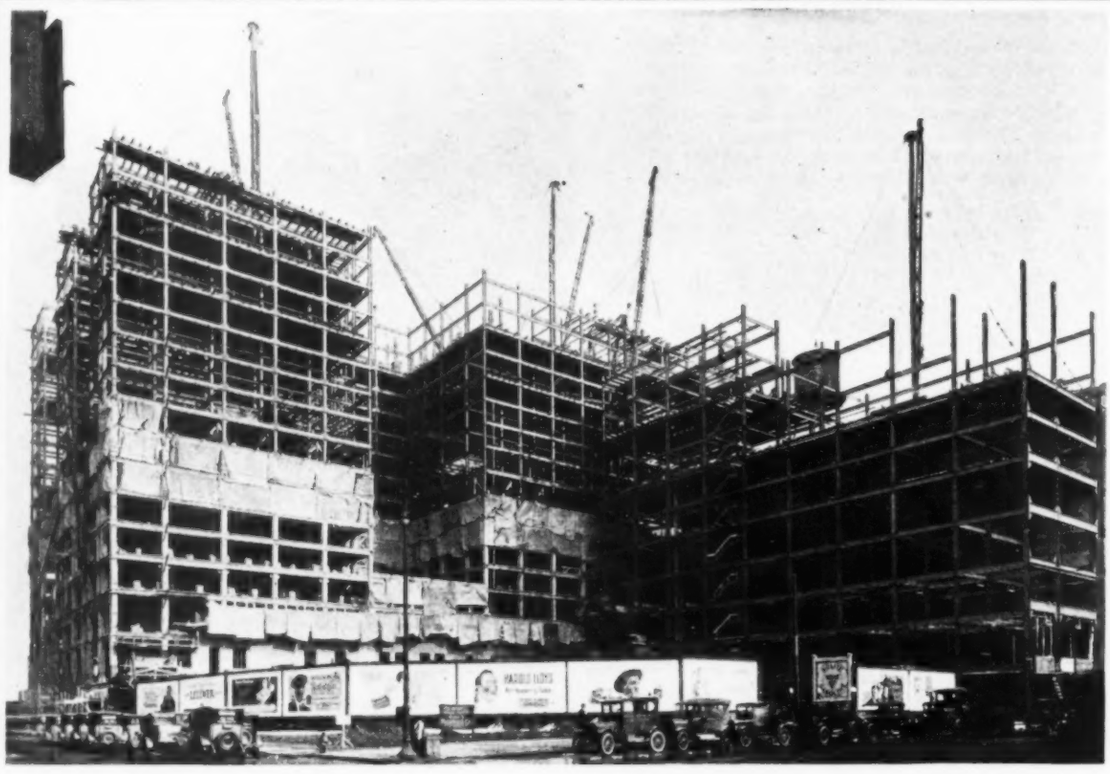
The two large pictures at the bottom of these two pages show two stages of progress in the construction of The Stevens. The photograph on the opposite page shows the site of the hotel shortly after the erection of steel work began. It was taken on November 25, 1925. The picture at the bottom of this page was taken on April 1, 1926, and shows the progress up to that time.







BLUE BOOK



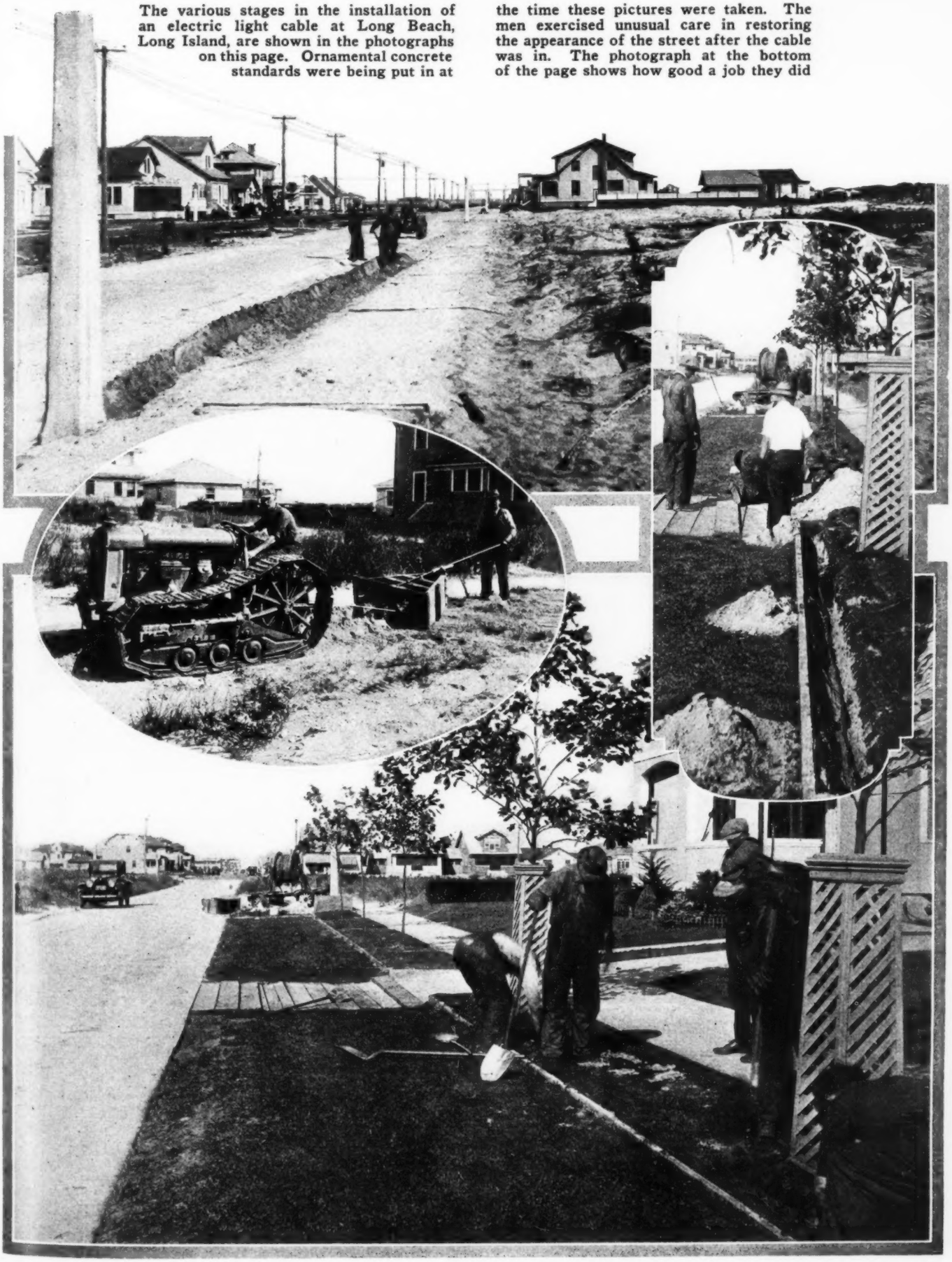
The Stevens, Chicago

The World's Largest Hotel

The upper photograph shows a section of The Stevens from the rear. The wing running out to Wabash Avenue will be used for the hotel staff. This photograph was taken on March 29, 1926. The lower picture, taken only a few days ago, shows The Stevens as it now looks from the Michigan Avenue Side

Cable Laying in a Residence District

The various stages in the installation of an electric light cable at Long Beach, Long Island, are shown in the photographs on this page. Ornamental concrete standards were being put in at the time these pictures were taken. The men exercised unusual care in restoring the appearance of the street after the cable was in. The photograph at the bottom of the page shows how good a job they did



Construction Methods Shown

Michigan Sewer, Kansas Dam Gain

First Prize
$25.00

THE winner of the first prize of $25.00 in the April photographic contest is W. B. Fisk, Sewer Department field man in the office of the City Engineer of Jackson, Michigan. The two photographs on this page were taken by him on the Eggleston Trunk sewer being built for the city of Jackson by the firm of Anderson & Campbell, contracting engineers. On this job the contractors put two Northwest cranes to work handling the job by the open cut sewer method.

The section of the sewer where this method was used was through undeveloped territory, and consequently, the contractors were not crowded for room as is often the case. The soil was of a more or less stable nature which permits of this method. It was chiefly sandy loam overlying a layer of gravel which contained occasional outcroppings of the clay beneath. During the laying of this section practically no water was encountered.

Shortly after the job was started a night crew was placed on the small crane and they took a preliminary cut along the line of the sewer. In the daytime, the large machine, which was equipped with a dragline, followed along, and from the bottom of this first cut dug down to the grade of the sewer and laid the pipe. The small machine assisted in this operation by piling back the earth as the large machine removed it.

Two Northwest cranes working together and digging a deep sewer

in Prize-Winning Photographs

Bridge and Pennsylvania April Awards

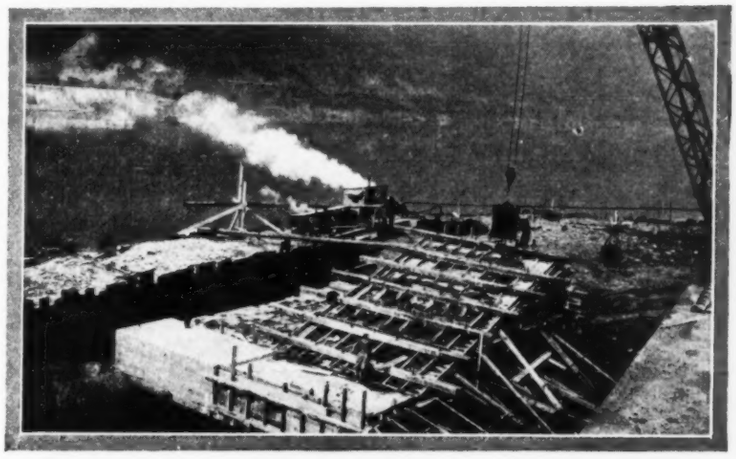
THE construction superintendent of the job shown is the winner of the second photographic prize of $15.00. His name is B. F. Wiggins, and he is in charge of the building of a highway bridge across the Arkansas River at Arkansas City, Kansas, under the direction of the state highway department. The Western Bridge Company of Harrisonville, Mo., is the contractor. The photograph shows one of the completed piers built to Kansas specifications.

The excavation for this pier was carried to the depth of 23 ft. 4 in. below the water level to a hard stratum of what is known as red bed. The bridge itself consists of four spans, each 140 ft. in length and being built exactly like the others. Work was begun early in 1926 and at the time these pictures were taken last month, the job was nearly finished. The bridge is on U. S. highway No. 77 which carries traffic to the main road leading into Oklahoma.

Second Prize
$15.00

ANOTHER job that has been carried on through the winter months wins the third prize of $10.00 for George F. Daugherty of Kittanning, Pennsylvania. The photograph shows the placing of concrete on a section of Dam No. 5 on the Allegheny River. This job is being handled by the Dravo Contracting Company, and this particular photograph was taken in midwinter, despite the fact that the river is free of ice.

Third Prize
$10.00



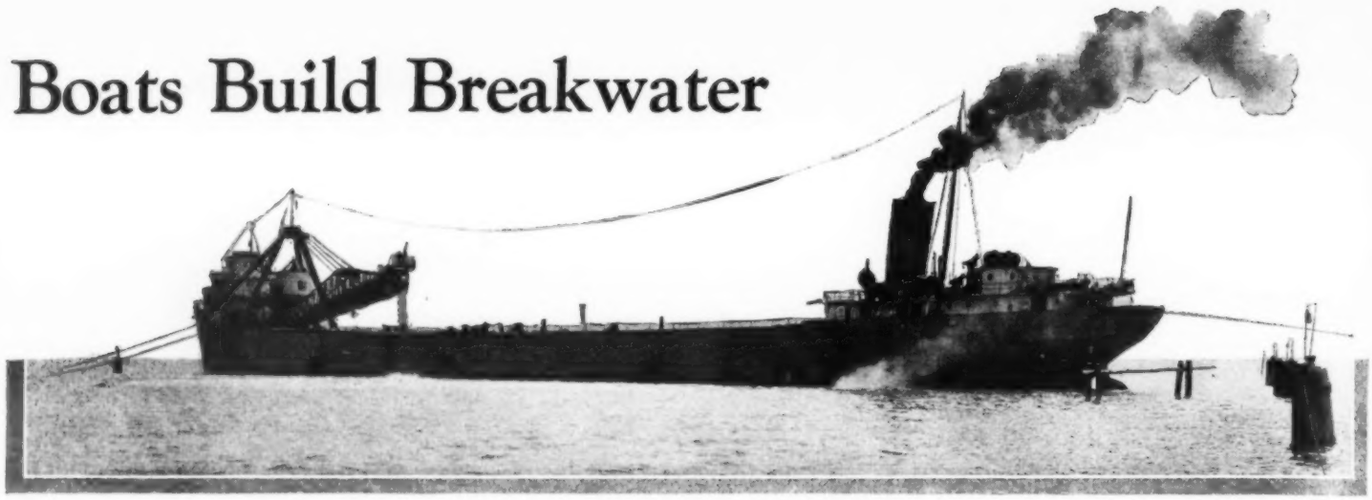
Funds for five dams on the Allegheny have been provided by Congress and work on several of them is now under way. Work on Dam No. 5 began last summer. This dam is situated at Freeport.

Our Money Is Up for May—Bring on Your Photographs

NOW that spring is here and new construction is beginning all over the country, the competition for the three photographic prizes offered each month by *Successful Construction Methods* will be keener than ever. Remember that three prizes are awarded each month, $25.00 for the photograph most suited to the needs of *Successful Construction Methods*, $15.00 for the second best and $10.00 for the third best. If you have a camera, try for a prize.

The conditions remain as before. The photographs must be taken by a man actually employed on the job and should be sent to *Successful Construction Methods*, Tenth Avenue at Thirty-sixth Street, New York City, by Monday, April 11, and plainly marked Photographic Contest. Photographs received after that date will be entered in the June contest. *Successful Construction Methods* will pay for all non-prize-winning photographs which it uses.

Boats Build Breakwater



STONE handling on a grand scale is under way at Milwaukee, Wis., where the Edward E. Gillen Co. is building an extension to the outer harbor breakwater. Two great steamers, each more than 500 ft. in length and equipped with belt conveyors, are placing the stone at a rate that would be impossible with the methods used in the past.

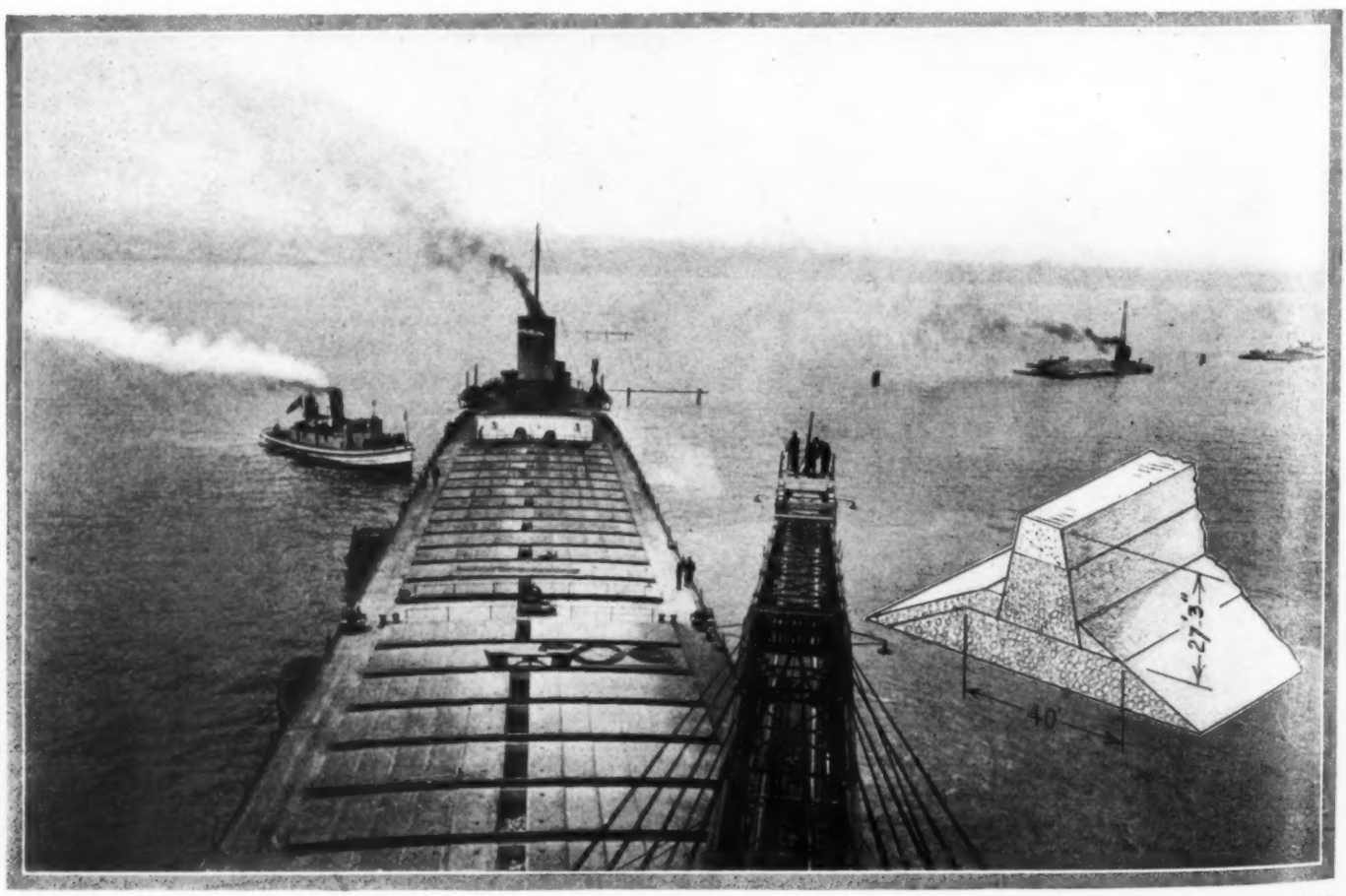
The Gillen Company recently were the successful bidders on the third contract of this character awarded by the U. S. Government at Milwaukee. This contract amounted to $519,000. The length of the proposed breakwater is 2,430 lin.ft. The time set for the completion of this work is three years. The work was let August 3, 1926, and up to this time more than 80,000 tons of the foundation stone have been unloaded by the self-unloader boat.

The total quantities involved are as follows:

Class I stone—(hand size) foundation	120,000 tons
—Caisson filling	22,500 tons
Class II stone—500 lb. to 3,000 lb. each	25,000 tons
Concrete	7,065 yards
Caissons placed	45

The method of doing this work is as follows: Pile clusters were driven along the length of this work about 40 ft. from the center line. These acted as a guide for the self-unloader boat. The unloader boat was placed along these clusters and moved slowly along the work as the stone was unloaded. The correct elevation of the foundation is determined by constant sounding off the end of the unloading boom. After the stone is placed by boat, the top of

Steamer B. H. Taylor unloading stone for Milwaukee breakwater. A cross-section of the breakwater is shown in the sketch at the right



the foundation is again trimmed by means of derricks and divers until the correct elevation is obtained. The concrete caissons are then placed on the foundation and filled with stone. The tops of the caissons are about 4 ft. above water. These are then capped with a concrete superstructure.

The depth of the water is approximately 35 ft. The foundation is 40 ft. wide on top with 1½ to 1 side slopes. The top of the foundation is 19.75 ft. below government datum or approximately 18 ft. under water.

The unloader boats used were the steamers B. H. Taylor and T. W. Robinson, owned and operated by the Bradley Transportation Co. The stone is furnished by the Michigan Limestone & Chemical Company. The boats are respectively 531 ft. and 588 ft. long. They carry from 10,000 to 12,500 net tons. The T. W. Robinson's actual unloading time for 12,500 net tons is approximately 5 hours with a belt unloading capacity of 2,580 tons per hour, or 43 tons per minute.

Where formerly 1,000 tons were placed by dump scow in a day, the boats now place 12,000 tons in 5 hours.

This work is under the direct supervision of the U. S. Government Engineers at Milwaukee, Major John J. Kingman being in charge of this district. The work has been under the direct supervision of Edward E. Gillen who pioneered this method of placing stone.

Removing an Old Pivot Pier to Clear Channel

Piles Pulled Through Base With Steam Hammer

By E. D. Clement, President, Salmons-Clement Co., Charleston, S. C.

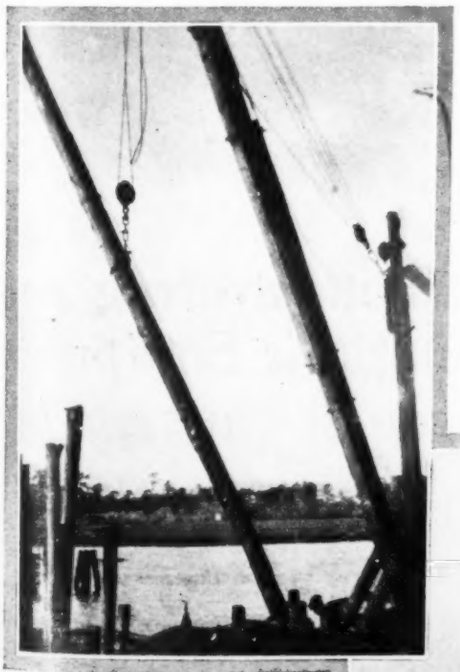
IN DEMOLISHING the old highway bridge across Wappoo Cut near Charleston, S. C., the old pivot pier which supported the swing draw span had to be entirely removed as it was obstructing the new south channel due to the fact that this channel was widened when the new bridge was built.

The old pier was a steel cylinder filled with concrete and measuring 16 ft. in diameter and 18 ft. from top to bottom. It was supported on twenty timber piles which projected up into the concrete about 2 ft. above low water mark.

Record time was made in removing the pier by the following method: Holes were drilled in the top of the pier at a 45-deg. angle toward the center; 3 ft. apart and on a circle the radius of which was about 6 ft. The holes were loaded with three sticks of dynamite each and blasted. The spoil was removed with an orange-peel bucket operated from a floating derrick and the blasting operation repeated until the supporting piles were exposed for approximately 2 ft. of their lengths. When this point was reached the top of the concrete was about mean low water.

One of the smaller piles was then selected for pulling and holes drilled alongside of it for a depth of 7 ft. A charge of two sticks was placed in each hole and fired. A reversible McKiernan-Terry steam hammer, No. 7, was attached to the pile and the pulling begun. After about two hours the pile started up and soon reached a point where it could be handled with the load line from the derrick boom.

A charge of explosives was then fired in the hole left by the pile and the nearest pile was next pulled and so on until all of the piles were removed.



The pile shown above was driven thirty years ago

New highway bridge across Wappoo Cut near Charleston, S. C. This bridge built after the channel had been widened replaced an old structure. The contractors who handled the work were the Salmons-Clement Co. of Charleston

Removing piles from old pier with steam hammer

Successful Co

CP 100 ft. Compressor and 2 CP Pavemen Breakers at work for Atwell, Gustin, Morris Corp'n, making cut for gas mains (in connection with subway construction) at St. Nicholas Avenue and 135th Street, New York City.

CP Sinker Drills in use by Rizzetta & Notta (in connection with 300 ft. CP Portable Compressor) on Rock Excavation in New York City. Drills shown at work on 8 ft. cut, have service records of 8½ hrs. daily average over a period of seven months.

CP Pavement Breakers operated on Subway Construction work by Rosoff Subway Construction Company. These little demolition tools find a wide variety of uses in the construction field.

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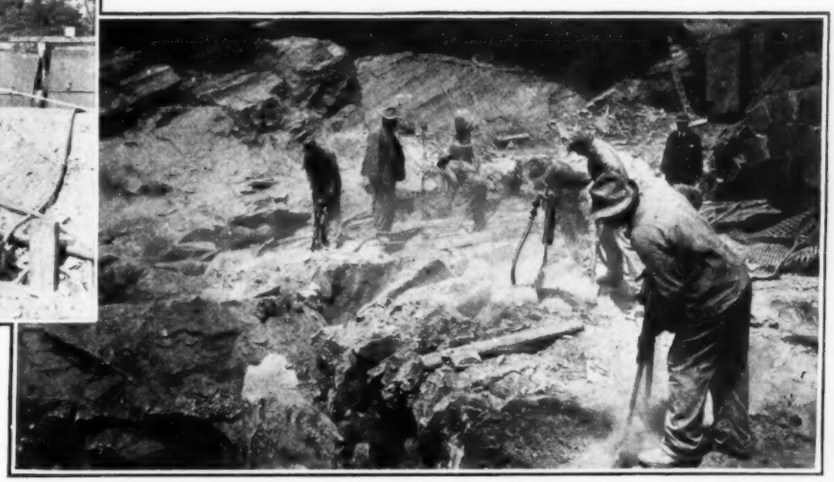
Contractors use these Methods

The illustrations on these two pages show what has practically come to be "standard practice" among the many experienced contractors, i. e.—the use of CP Portable Compressors in the operation of CP Drills and Pavement Breakers on typical highway and subway construction work.

There is little need for sales talk regarding CP products in the contracting field today. They are in use wherever contractors need simple, dependable, portable air compressor units in capacities of 100 to 300 cu. ft. per minute. In particular, the CP 300 cu. ft. gasoline driven compressor (see photo below) insures an abundance of power, rendering it particularly valuable where relatively high pressure is demanded. CP Hammer Drills and other equipment (Riveting Hammers, Backfill Tampers, etc.) have set a standard for rapid, continuous performance that means more and better work per man-hour. Their design, construction and operation are the results of years of experience *on the job.* They have been developed in types, sizes and weights to meet every need of the contractor, and how they meet these needs is a matter of actual record.

One of five 300 ft. CP Portable Compressors supplying air to drills for the Consolidated Telegraph & Electrical Subway Co., taking a 10 ft. cut in rock for trench work.

Just a few of the more than twenty CP-10 Sinker Drills (Dry) on one of the New York 8th Avenue Subway Contracts. Operated by CP Compressors. These drills are busy on excavation, road work, digging trenches, drilling holes in concrete, demolition work and numerous other uses.



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- ☐ Bulletin 850—CP Sinker Drills
- ☐ Bulletin 797—CP Portable Compressors
- ☐ Bulletin 796—CP Air Compressor (300 cu.ft. size)

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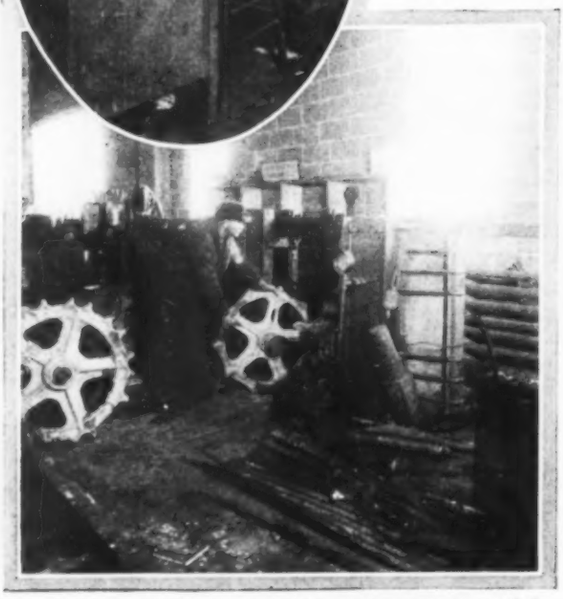
Preparedness Now

At left — A cost clerk has his desk in the shop where he can keep in touch with all overhauling and repairs



Above—The power press in this photograph is used in getting gears into shape for the season's work

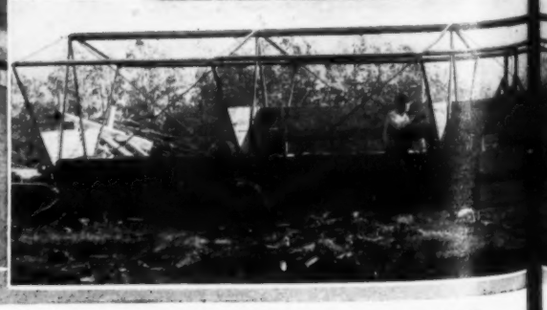
Below—Parts are dipped in this steam washing tank to remove grease and grit

Above—All of the batch boxes are checked over and put in shape

Below—At work in the shop on a

The odd looking contrivance below is a

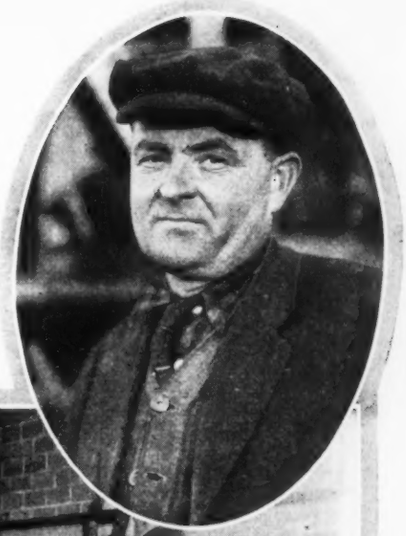
Below—A little welding is necessary now and then



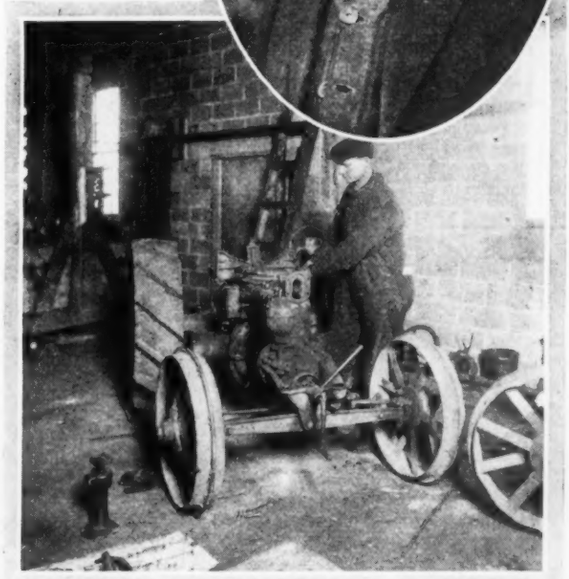
Means Profits Later

Gus Scharl, Road Contractor, Gets Ready for His 1927 Campaign

Barber-Greene ditcher and two big trucks



At right—John Paas, shop superintendent

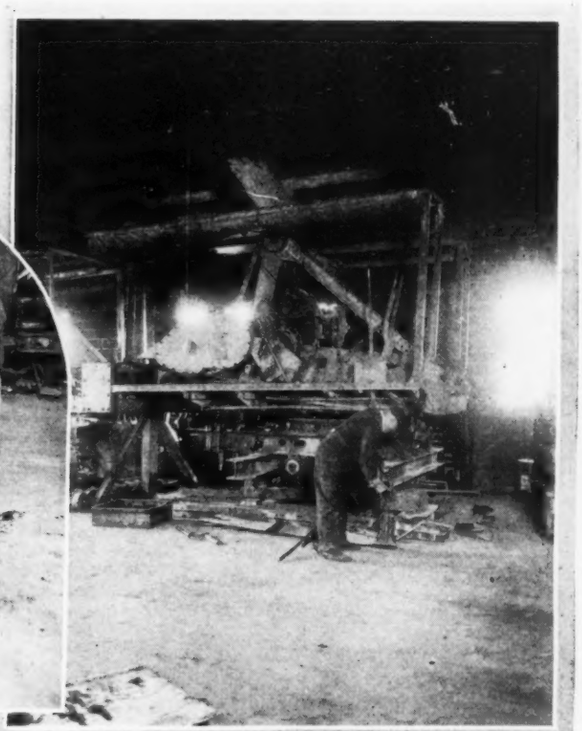


The small photograph directly below shows men oiling harness

Above—A Fordson tractor receives its full share of attention

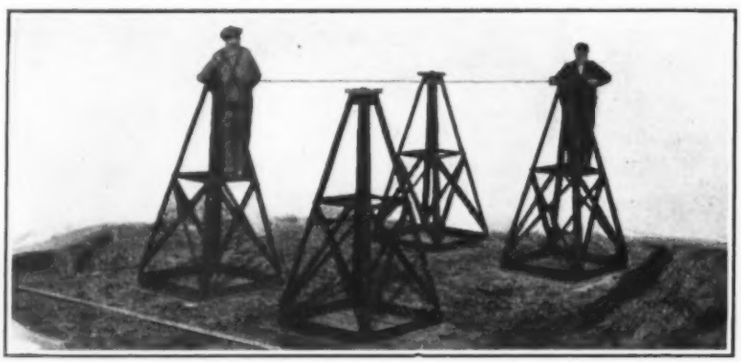
Below—A thorough job is done in overhauling a big Northwest shovel

Portable barn with a capacity of 20 horses

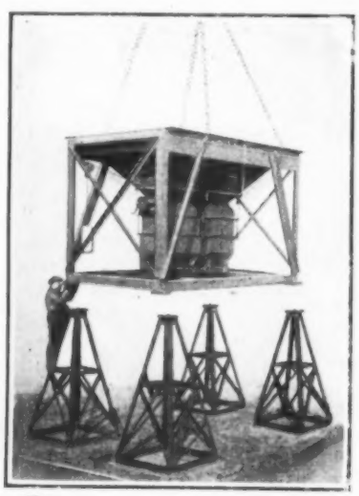


Step-by-Step Field Methods—How

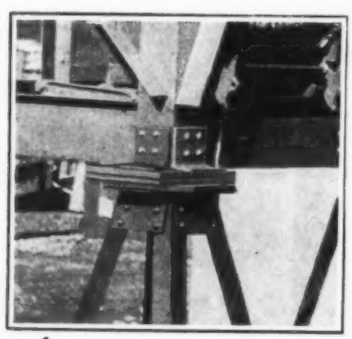
1 IN SETTING UP a Blaw-Knox pedestal type bin and batcher plant the ground is first leveled off and timber mats are provided. For average soil conditions the mats are made of two layers of 3-in. plank spiked together and crossed, 5 ft. square. A mat of this kind under each pedestal provides 25 sq.ft. of bearing area or a total of 100 sq.ft. for the bin. On these timber mats the—



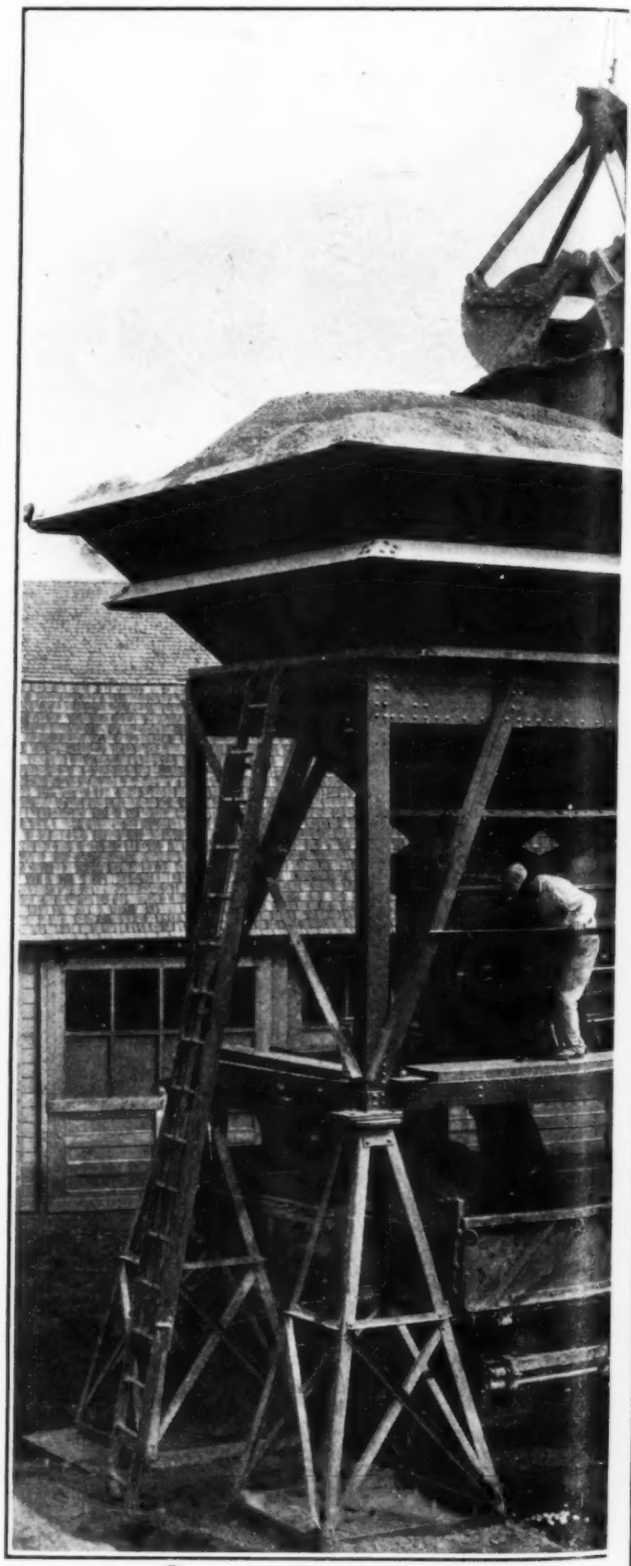
2 PEDESTAL SUPPORTS, 4 ft. 6 in. square at the bottom, are accurately placed to distribute the load at each corner of the bin. The position is carefully checked with erection blueprints furnished with each bin. Pedestals are now ready to receive the—



3 MIDDLE UNIT of the batcher plant which is received on the job completely equipped with batchers or with the inundation system. It is lowered into place on the pedestals by a crane, stiff-leg derrick or other hoisting equipment, or it can be rolled onto the pedestal from a flat car without use of crane.



4 DETAIL OF CONNECTION between middle unit and pedestal involves square lug in pedestal which fits into square aperture in bearing plate of middle section of bin, locating placement of this section. This operation takes place simultaneously on all four pedestals. It is then optional with contractor whether or not to take advantage of additional fastenings, for which bolt holes are provided in the bearing plates. All pedestals are interchangeable.

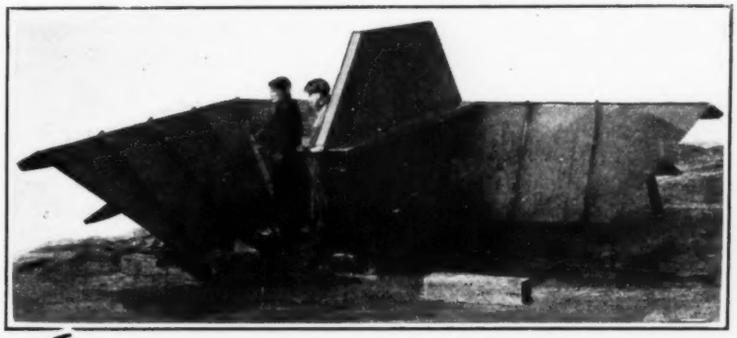


8 COMPLETED self-cleaning type of Blaw-Knox steel portable batcher plant equipped with adjustable measuring batchers for sand and stone. This plant operated by the H. J. Mullen Construc-

to ERECT A PEDESTAL TYPE BIN

tion Co., Amityville, Long Island, New York, as a central proportioning plant for a large road job. Ground operation is illustrated in this view but plants can be equipped for platform operation if desired.

5 MIDDLE SECTION and pedestals are now ready for installation of the steel bin extension.



6 STEEL EXTENSIONS for batcher plants are shipped in five large, easily assembled sections, requiring a minimum number of bolts for assembling. These extensions, completely assembled, including the center partition, form a solid complete unit which is lifted into place with a crane.

7 COMPLETELY ASSEMBLED extensions and partitions are next lowered into place. After inserting the few bolts required to secure these extensions in place, the plant is ready for operation. The whole process of erection requires only a few hours' time, which is inconsiderable compared to days spent in fabricating or assembling a bin under old-fashioned methods.

Cleaning Out a Condensing Pond

Movable Bridge and Floating Crane Handle Job

By G. W. Maker, Aberthaw Co., Boston, Mass.

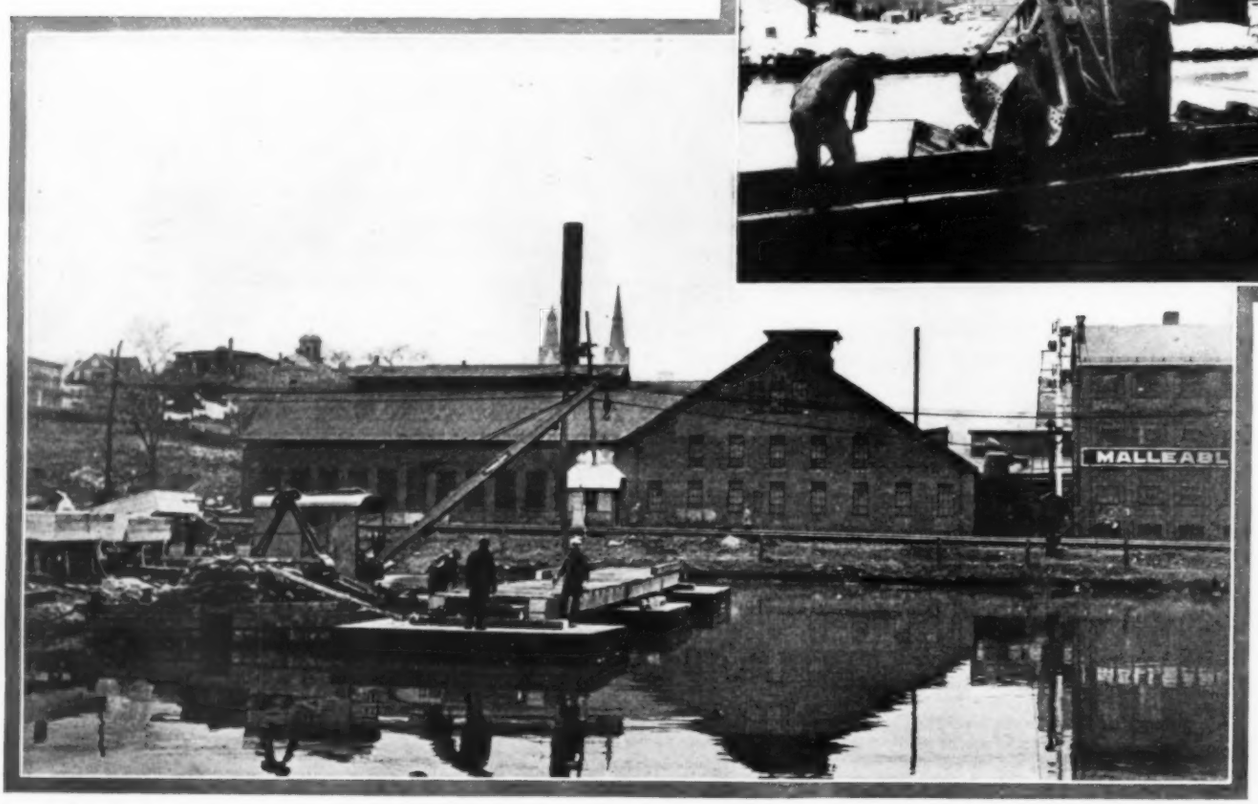
THE removal of silt which had been accumulating for 25 years in a condensing pond owned by the Russell & Erwin Company of Boston was undertaken recently by the Aberthaw Company of Boston, under the direction of Charles S. Norris, Chief Engineer of the American Hardware Corp., and a rather unusual method of handling the work was adopted.

The pond is 580 ft. long, generally rectangular in shape, with an average width of approximately 200 ft. A railroad on one side, a street on the other, and factory buildings at each end left practically no working area and made the use of drag line or hydraulic equipment out of the question. The study finally boiled down to a floating crane as excavating equipment. This decision considered the use of bin pontoons to take the excavated material and this in turn suggested the possibility of bridging the pond with a line of pontoons.

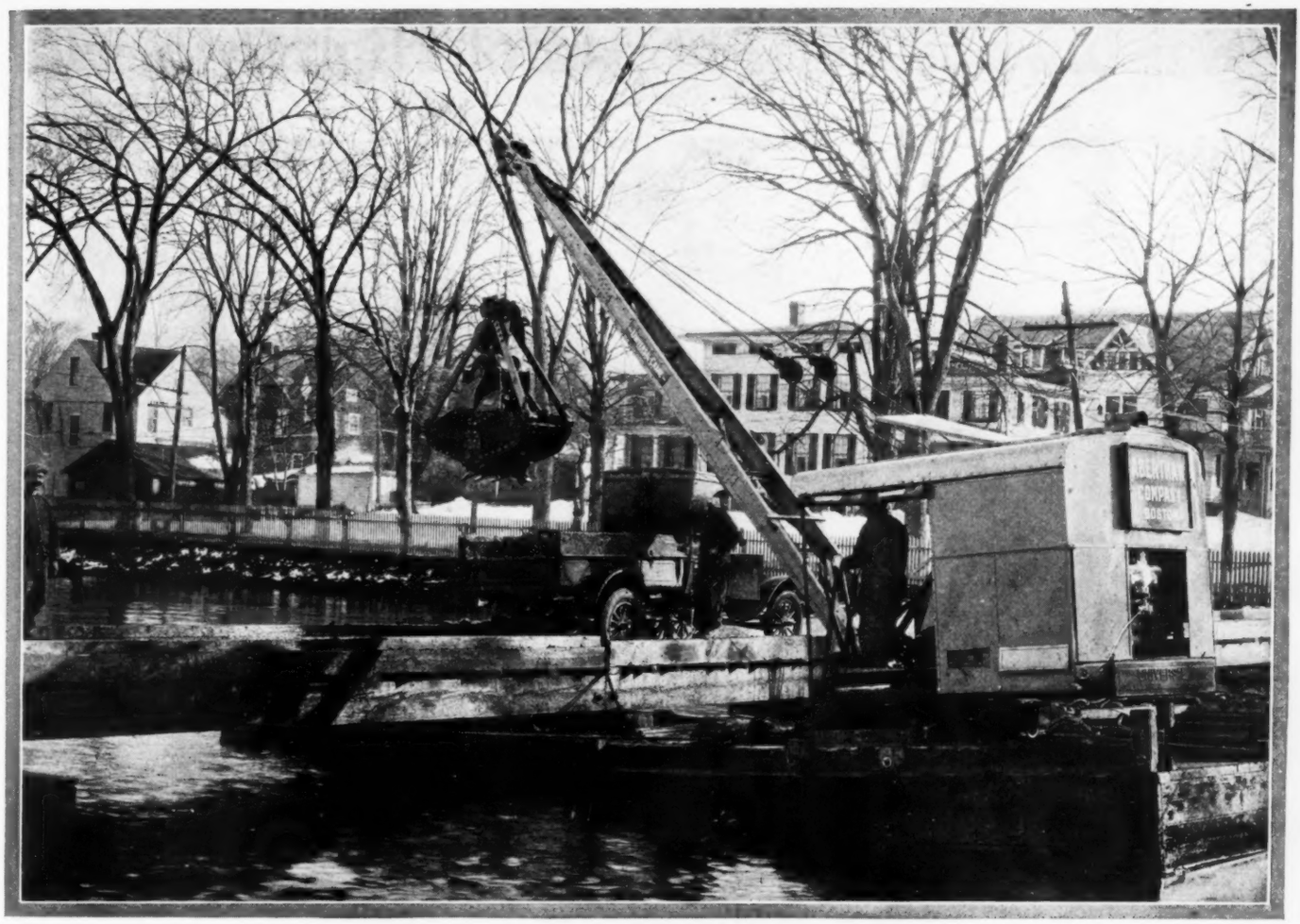
The seven bridge pontoons are practically wooden boxes 12 ft. by 16 ft., and 2 ft. deep, substantially constructed of 2-in. plank with two parallel solid bulkheads approximately under the line of the bridge stringers. Two 6-in. blocks across each pontoon were held in place by eyebolts running completely through the pontoon with nut and washer on the bottom. A rod through these eyebolts and through the bridge stringers held the bridge in place on the pontoons and at the same time allowed the necessary flexibility. The bridge itself was a simple affair of 12 by 12 stringers, supporting a deck of 3-in. plank with a guard strip on each edge. Small openings were left in the deck to facilitate snow removal. The construction of pontoons and bridge required the services of eight carpenters for three weeks.

The excavating equipment consisted of a Universal crane, owned by the Lee Crane Service Co. of Boston, gasoline driven, handling a ½-yd. clamshell bucket with teeth. The crane was supported across one end of a pair of small scows each 30 ft. long, 8 ft. wide and 4 ft. deep. About 8 tons of pig iron on the opposite end of this pair of scows counterbalanced the crane.

This arrangement worked out even better than was anticipated. The six 1-yd. Ford trucks, which took the excavated material to the dump ⅝ mi. away, moved along the railroad bank light and out on the bridge, where they received their load, thence to the road on the opposite side of the pond and to the dump. The crane covered a width of approximately



The construction of a movable bridge is shown in the lower photograph, with the crane helping out. Pontoons are being built at the left. The small picture at the right shows the crane picking up the landing span with the teeth of the bucket



Crane loading small truck which stands on movable bridge

15 ft. in each passage across the pond, which required approximately three days, in which time about 500 yd. of material was excavated.

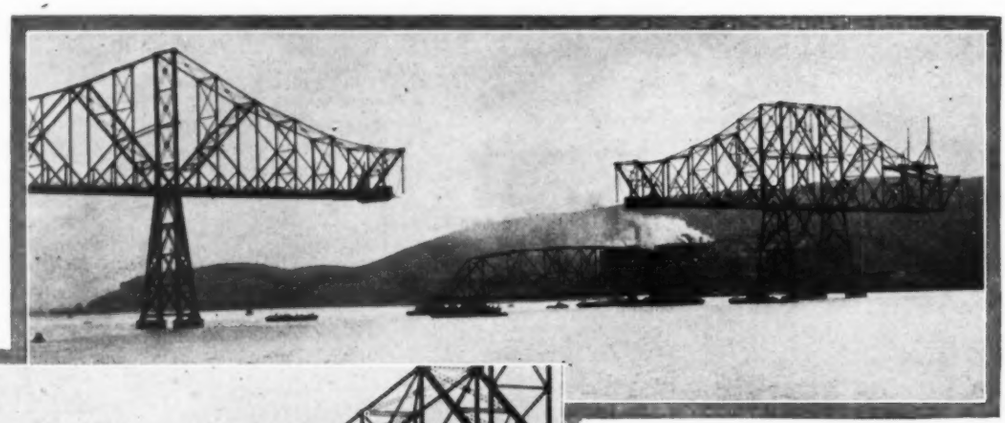
The bridge was moved with surprising ease in about 40 min. The process of moving involved a small amount of grading at each bank and the placing of light sills to take the landing spans. The bridge was then moved one end at a time, the crane picking up the landing span while the bridge was warped into place by ropes. The operating force consisted of only four laborers in addition to the crane operator, two of these laborers being employed at the dump.

The excavated material was a fairly thick muck, in which was embedded a considerable amount of debris. The water did not seem to drain readily when the bucket came up, and it was suggested that an orange-peel bucket would give better results. The bucket was accordingly changed and showed an interesting development. The material was sufficiently deep so that when the orange-peel was dropped it was completely embedded in the soft muck which held until the line broke. The clamshell bucket was then put back.

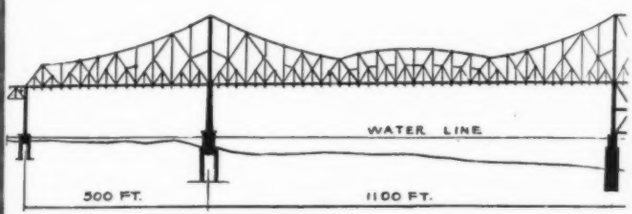
The excavation was completed at a total cost of $1.75 per yd., which includes the total cost of the bridge without allowance for salvage, as well as the rental of the crane and a trucking cost of 55 cents a yard.

A general view of the pond with the crane at work

Raising Suspended Span of Highway Bridge

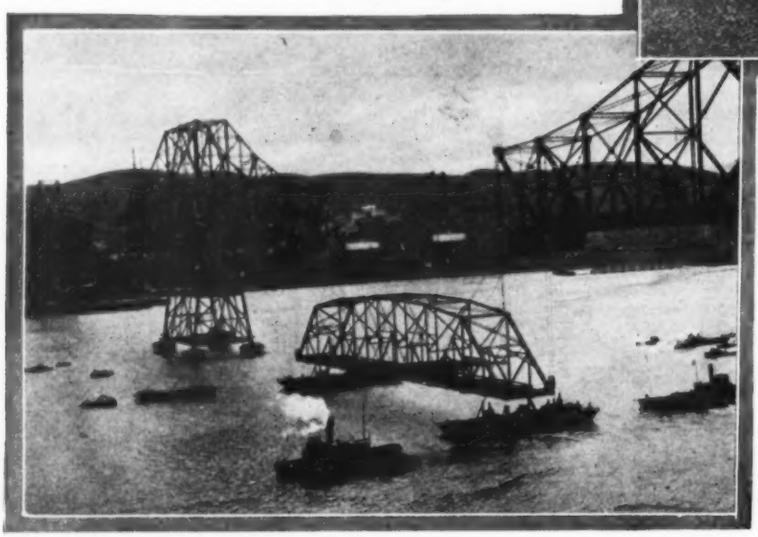


Span arriving under bridge supported on two steel barges. Four 500-ton hydraulic jacks on each barge supported span



Tugs maneuver span into position. This photograph was taken at 11:30 a.m.

As the span was lifted free of the barges at 2:30 p.m., the tugs blew their whistles to announce the fact that the 750-ton structure was on its way up

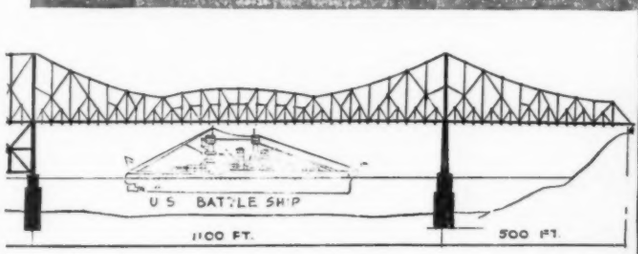


One hour later at 12:30 the work of knocking away timber shoring allowing jacks to lower span and haul cables taut was under way

These photographs were taken by Philip Thayer of Piedmont, California, who made a complete series of 50 pictures showing the raising of the span which took place on March 3d. Mr. Thayer sent these photographs to Successful Construction Methods because he thought that the readers of this magazine would be interested in a pictorial story of this interesting operation.

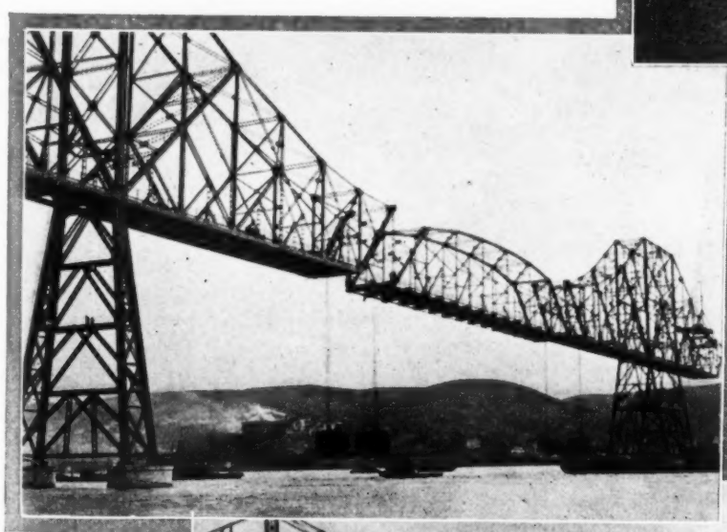
Across Carquinez Strait Near San Francisco

As the span went up, the barges were moved away. The four counterweights, each filled with five carloads of sand, may be seen on their way down

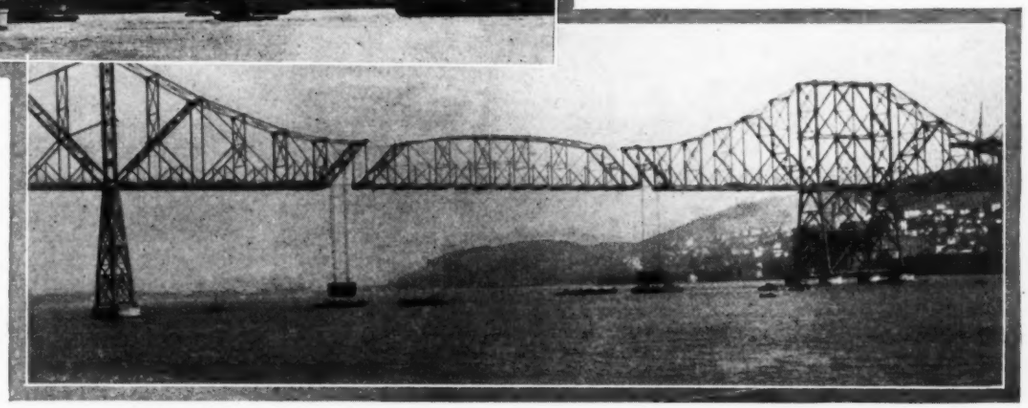


At 3:10 the span was in position and the pins which held it in place were being driven

When this picture was taken the span was more than half way up and the barges which brought it to the site moved still further away



A few minutes later the counterweights were being emptied and the throng of spectators who had watched the operation for more than four hours were on their way home



Central Mixing Plant Speeds

Big Job Put Through in Three Months

WHEN the Trustees of the Sanitary District of Chicago let a $400,000 contract last year for an important intercepting sewer just west of the city, they demanded speed and got it. The contract specified six months in which to do the job. It was finished in three.

The Dowdle Brothers' Co., contractors, cut the construction time in half and incidentally demonstrated the practicability of some novel construction methods. The huge egg-shaped monolithic reinforced concrete drain, 3 ft. 4 in. by 5 ft. in size and 14,000 ft. long, was placed 24 ft. deep. Because of the presence of gas conduits and telephone poles along one side of the road where the sewer was to go, 7,200 ft., or over half the job, had to be put through in the form of a tunnel; the rest was an open cut. Shafts were sunk every 600 ft. along the tunnel and hoists raised the dirt that was excavated besides carrying men and concrete down to the working levels.

A central mixing plant was used. Constant supplies of sand, stone and cement were maintained at the mixer by the Material Service Corporation. A Ransome mixer, with a 60-ton receiving hopper, divided into compartments for sand and stone; an automatic measuring and proportioning hopper and automatic water control provided properly mixed concrete quickly anywhere along the line. A load could reach the most remote shaft half a mile distant in less than five minutes. Dump trucks with 2-yd. capacity carried the concrete from the mixer to the shafts. "This feature alone reduced our labor for this part of the work from 25 to 15 men and in addition it speeded up operations tremendously," reports J. J. Dowdle, secretary of the company.

The central mixing plant at the left handled the concrete for the tunnel work. The Koehring paver on the right took care of the open cut section

The photograph at the bottom of the page shows one of the shafts

Construction of Chicago Sewer

This big Austin trencher dug out 2 cu.yd. per minute. The photograph at the bottom of the page shows a typical section of sewer

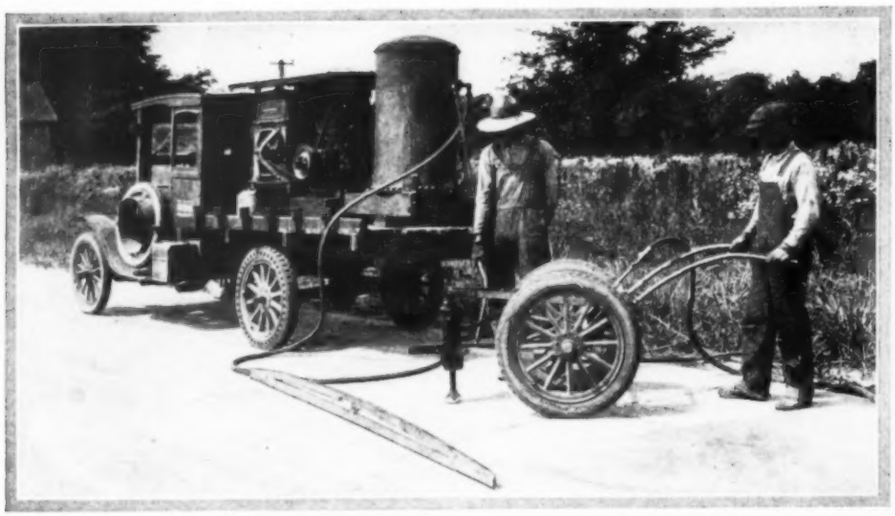
Rapid results in digging the open cuts followed use of the giant 130-hp. Austin trencher—the largest one made and said to be the only one of that size in the Chicago district.

A systematic organization of men likewise helped to push the work. For example, one Sullivan air compressor served two shafts. Three shifts of workers insured continuous progress day and night. From 4 p.m. to 8 a.m. men mined. From 8 a.m. to 4 p.m. another crew concreted.

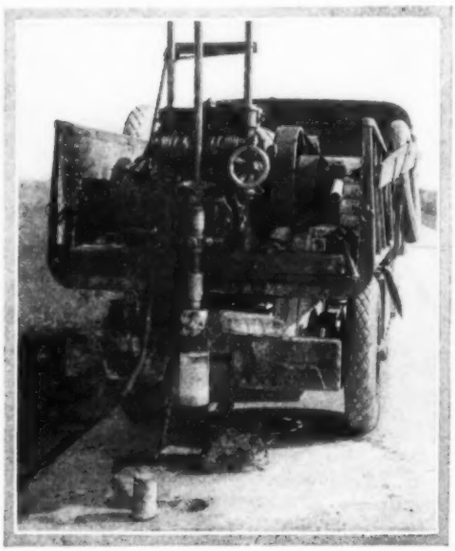
The work was supervised by E. J. Kelly, Chief Engineer of the Sanitary District, with Larry Rice as Resident Engineer on the job. Universal cement was furnished by the Material Service Corporation, Chicago.

Motor Truck Equipment for

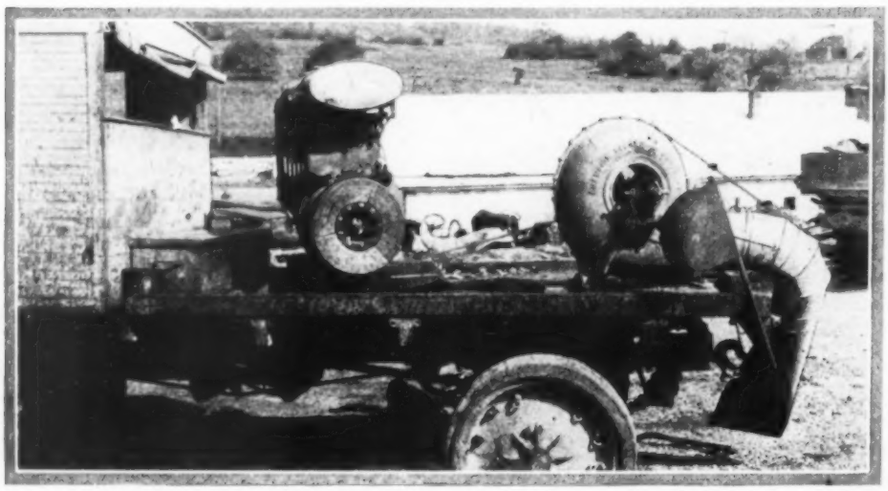
A few of the special attachments and ingenious devices that representative state highway departments have applied to



BUSHHAMMER used by Illinois Division of Highways for removing high spots from concrete pavement. Hammer is operated by air from hose line to compressor mounted on motor truck.



CORE DRILL mounted on truck for taking samples of completed concrete pavement in Illinois. Note drill hole and core standing beside it.



FOR BLOWING dust from roadway surface before applying bituminous material. Virginia Highway Commission has equipped trucks with gasoline-engine driven blowers.

REAR END of truck shown in preceding photo, indicating how exhaust piping is led from blower to road surface.

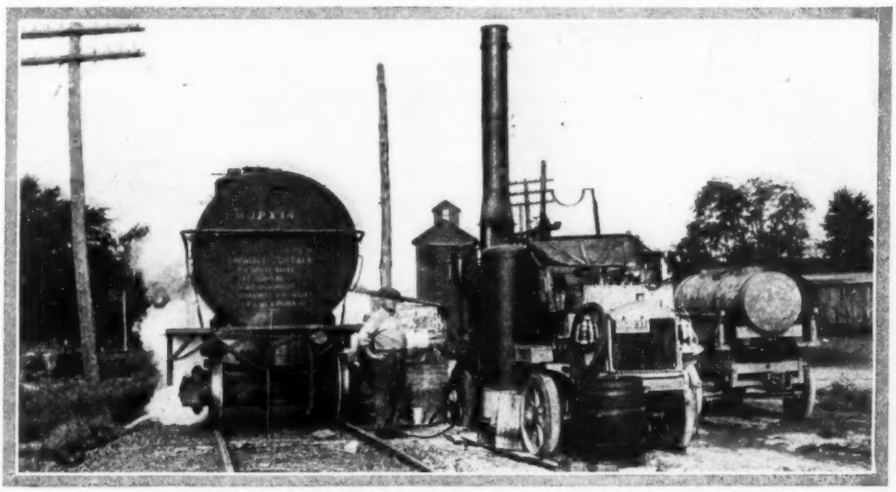
BLOWER TRUCK, above illustrated, is also used, with trailers, to haul bituminous materials.

Highway Maintenance Work

motor trucks to adapt them particularly to maintenance requirements and snow removal work (see also next two pages).

CENTER-LINE MARKING device perfected by C. N. Maurer, mechanical engineer of the Wisconsin Highway Commission.

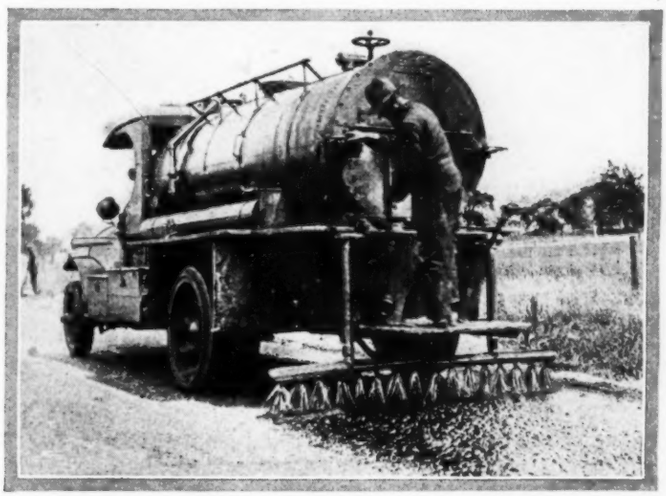
CHIP and sand spreader on Virginia Highway Commission truck. Amount of material governed by a hand lever and ratchet. A hand agitator prevents material from clogging.



HEATING OUTFIT, on motor truck mounting, used in Ohio for bituminous surface treatment operations.

REVOLVING CRANE mounted on motor truck chassis for ditching work with boom and bucket.

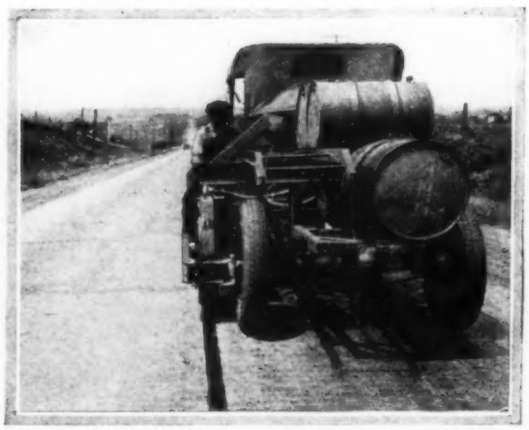
PRESSURE DISTRIBUTOR carried on motor truck chassis for bituminous surface treatment work in Ohio.



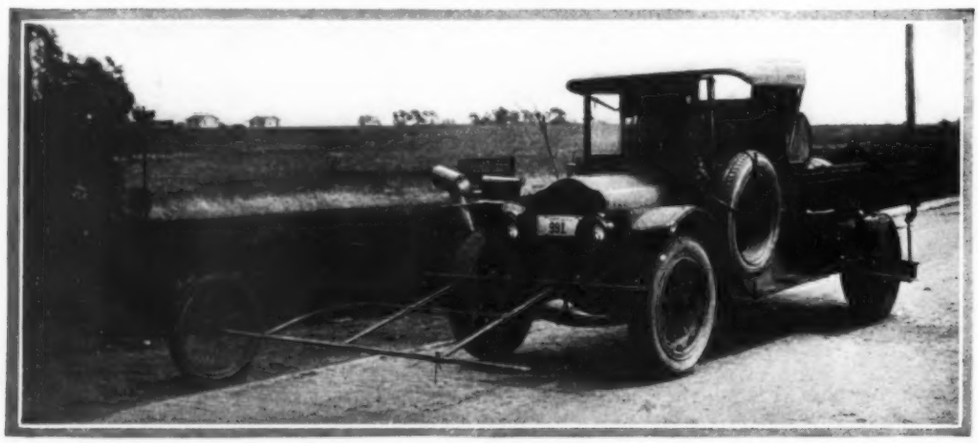
Motor Truck Equipment for

More devices and attachments used by state highway depart-

MARKING device on Iowa Highway Commission truck for applying center line. Two operators required, one driving truck and one regulating application of paint to marking wheel.



REAR-END view of center-line marking machine in preceding photo, Iowa State Highway Commission.



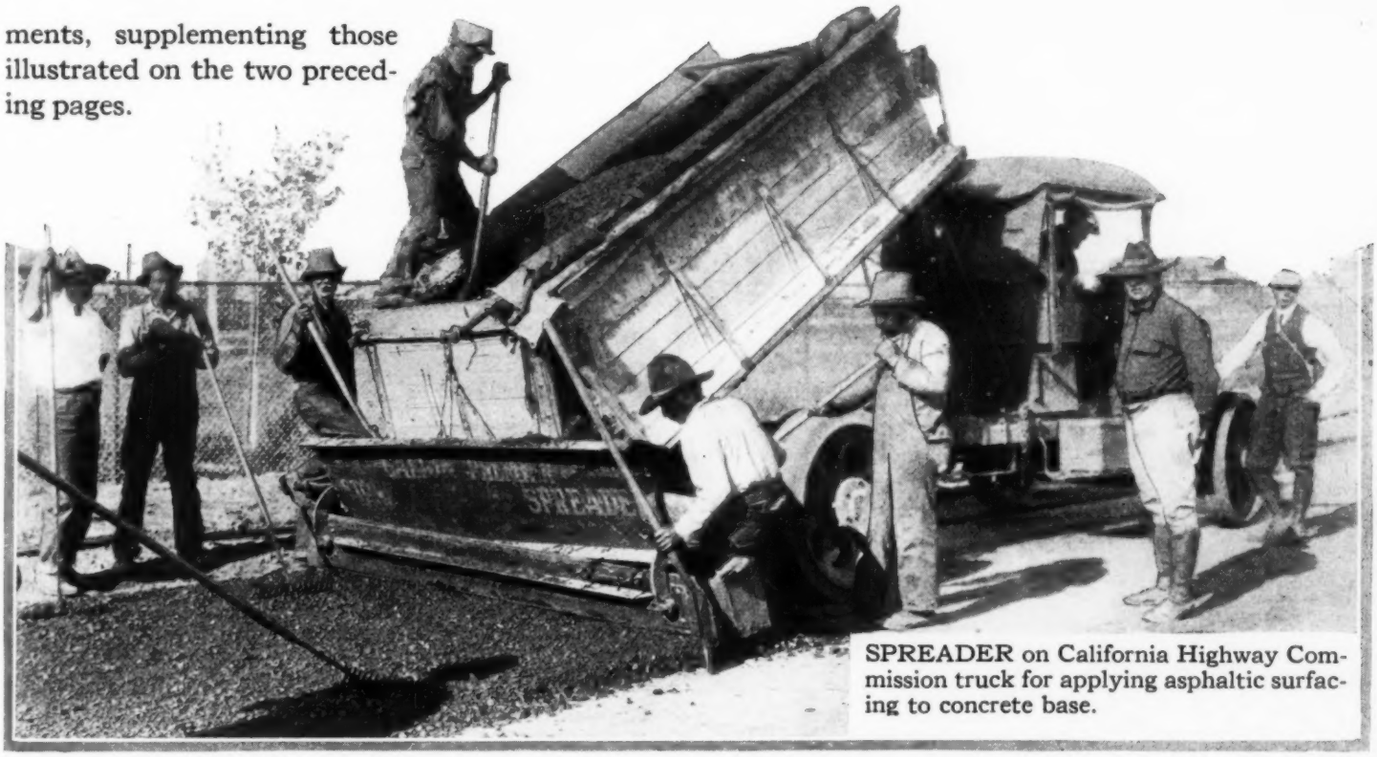
OUTRIGGER and guide wheel to keep truck proper distance from pavement edge for center-line marking in Iowa.

TRUCK-MOUNTED asphalt and compressor outfit for maintenance in Oklahoma. Cracks, before being filled, are blown out with air from hose line fed by compressor.

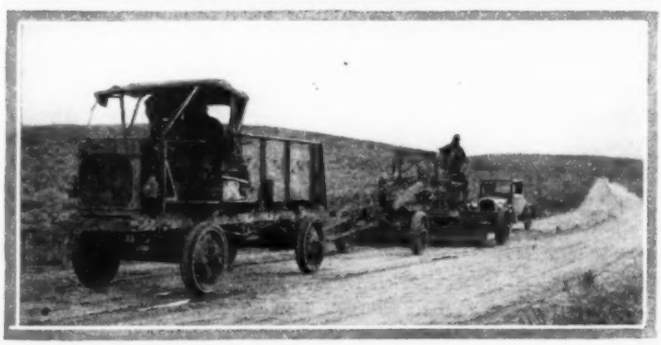
IN MINNESOTA "frost boils" are eliminated by thawing holes through frozen ground to permit water to drain. Steam supplied from boiler on truck.

Highway Maintenance Work

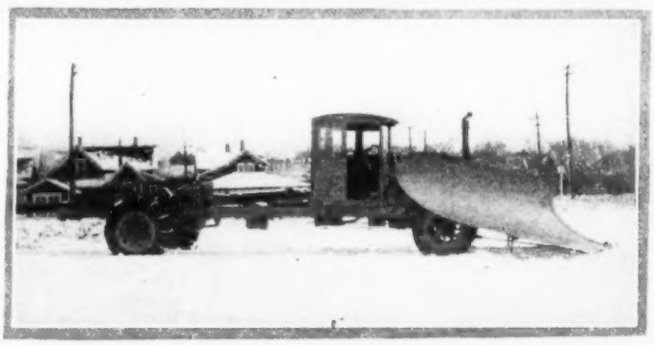
ments, supplementing those illustrated on the two preceding pages.



SPREADER on California Highway Commission truck for applying asphaltic surfacing to concrete base.

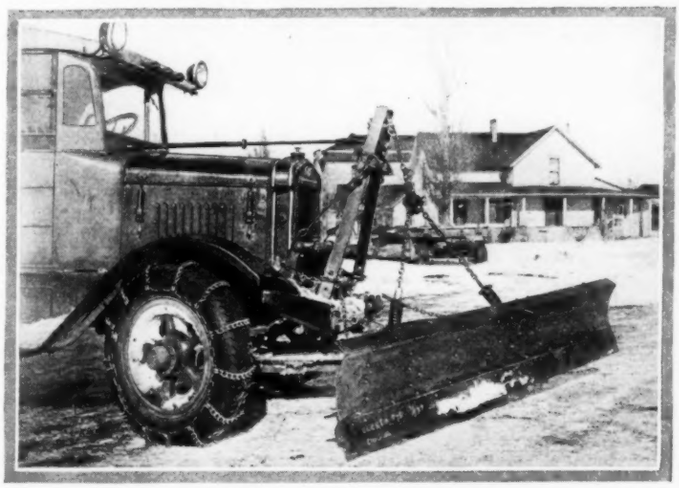


IN IDAHO, as in other states, the motor truck is employed by the highway department to haul blade graders for road maintenance.



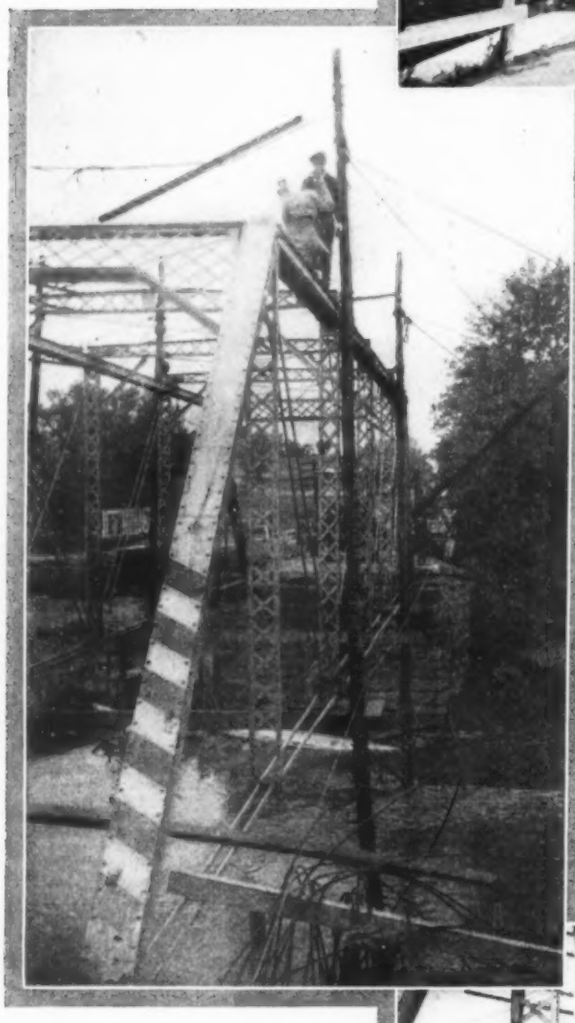
MICHIGAN HIGHWAY motor truck plow lifts deep snow before throwing it aside. Truck operates at 15 to 30 miles per hour.

PUSHER BLADE snow-plow rigged to the front end of one of the Maryland State Road Commission's trucks.



TRUCK in Michigan with a 10-ft. blade on front of truck for snow work.

At right—The bridge as it looked when it was still carrying traffic



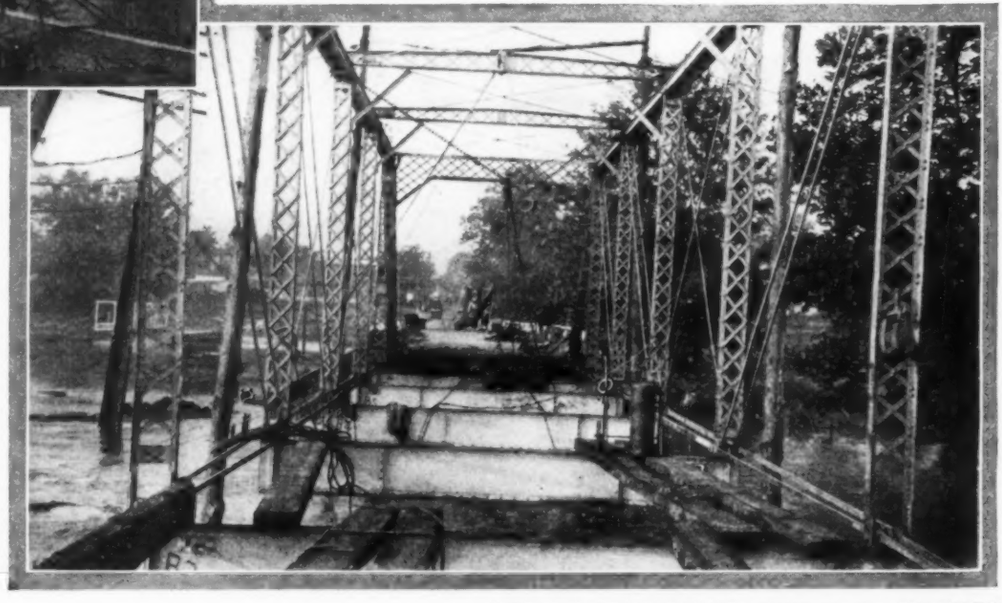
Taking Down a

Unusual Methods Adopted to

ON A JOB handled recently by the Development & Construction Company of Baltimore, J. C. Little, the chief engineer, encountered the problem of taking down and saving for reerection a steel bridge with a 100-ft. span. This bridge was over the Big Patuxent River at Laurel, Md., a stream noted for its frequent floods when the waters rise from 12 to 15 ft. in the space of a couple of hours and bring down a large variety of drift which has a tremendous velocity.

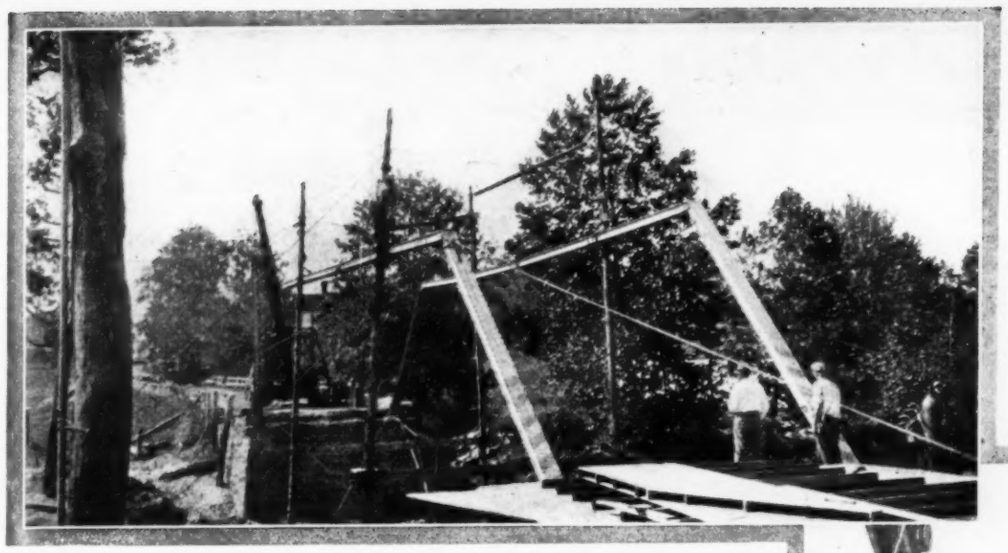
Ordinarily this job would have presented but minor difficulties as it would have been a simple matter to crib up from the stream bed but, due to this prevalence of floods a different method was adopted. When Mr. Little proposed his plan it was received with expressions of doubt and was declared impossible and impractical by several steel men who looked over the job.

The first step was to lash gin poles to the four corners of the bridge and to guy them so they would remain vertical thus developing their full strength. These poles were only 6 to 8 in. in diameter at the butt.



Above—Four gin poles as shown in this photograph were lashed to the four corners of the bridge, great care having been taken to keep them vertical

At right—The floor beams were removed with a chain sling. All members of the bridge were carefully numbered



At left—The crane is shown handling one of the heavier end members

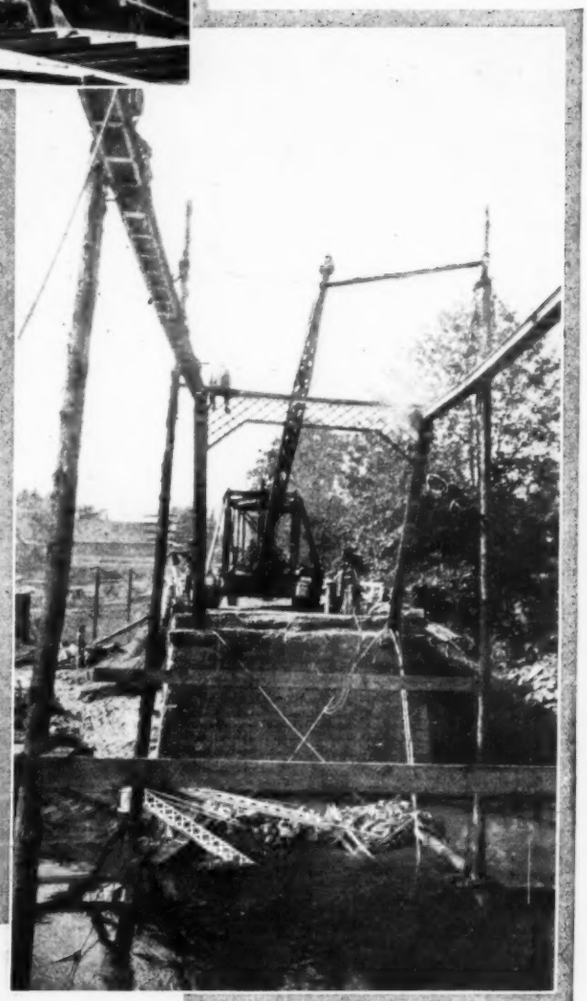
a Steel Bridge

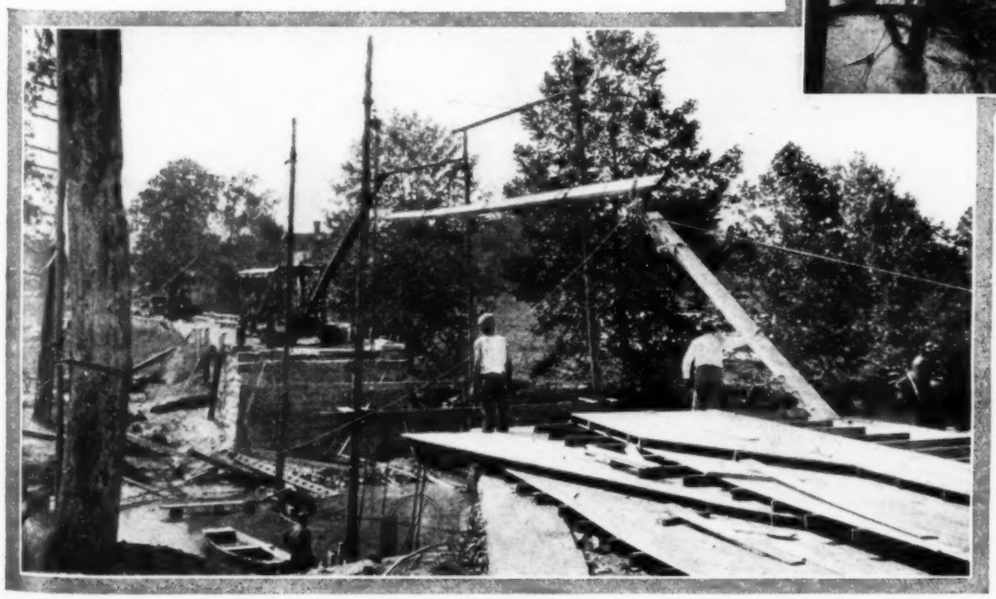
to Avoid Danger of Floods

The next step after the removal of the wooden floor was to burn the nuts off of the stirrups which held the steel floor beams in place with an acetylene burner. A chain sling was around each beam which was lowered from its place sufficiently to clear and was then swung lengthwise with the bridge and raised until it could be slid along the other members to the roadbed. All members of the bridge were numbered to facilitate reerection.

The pictures which accompany this article and which were taken by W. Albert Goetz show the various stages of the demolition of the bridge. The three photographs on the opposite page show the early stages of the work including the removal of the floor beams.

After this part of the work had been done a crane was moved up and handled the job of removing some of the heavier end members. The other end members were removed by a block and fall with tag line. The photograph at the right on this page is one of the most interesting of the series as it shows the top and end members still in place and entirely supported by the four gin poles.





Above—The four gin poles are supporting the top and end members of the bridge

At left — The final stages of the work showing the removal of the last pieces of steel

NEW EQUIPMENT ON THE JOB

One Man Handles Backfiller

A one-man backfiller has been put on the market by the Baker Steel and Machinery Co. of Omaha, Neb. This machine, which is shown in the accompanying photograph, is powered with a Fordson tractor. The boom furnished with

the machine is 22 ft. in length, but it may be lengthened or shortened in order to suit the work that it is doing. It is also possible to detach the boom and make the tractor available for other work.

A Three-In-One Paint Spray

The man shown in the accompanying photograph is painting a metal ceiling with the new Milburn paint spray made by the Alexander Milburn Company of Baltimore, Md. This

spray consists of a 3-in-1 gun which can be used either as a siphon-feed, pressure-feed or gravity-feed spray. The multiple head adjustment permits either a flat fan spray in either horizontal or vertical position or a round spray. Only a simple adjustment is made to change from one to the other.

The spray also can be used for dusting as by raising a trip lever the air only functions and the paint supply is completely cut off. Both the air and paint valves are operated simultaneously. By pulling the trigger paint flows to the atomizing chamber, is expanded and then is driven into the pores of the surface to be covered.

This Crane Walked Out

The Universal crane shown below looks as though it were hopelessly bogged. That, however, does not happen to be the case. With the aid of the track layer attachment which may be seen on the rear wheels, the crane climbed out of the mud without difficulty.

This track layer has been developed by the U. S. Wheel Track Layer Corporation in co-operation with the Universal Crane Company. The crane shown in the photograph was mounted at Rahway, N. J., and was driven to Atlantic City,

a distance of 120 miles, averaging 16 miles per hour running on the 8 rubber-tired wheels. The crawler tread was then fastened round the wheels and the crane went to work on the excavation for the new Atlantic City Convention Hall.

With the crawler equipment it attained a speed of 8 miles per hour. The crawler tread can be put on and taken off in a very short space of time and it gives the crane practically the same stability as when it is mounted on an ordinary crawler and permits its use in many places where 4-wheeled trucks could not venture. With the crawler in place the ground pressure is very low as the treads are 15 in. wide. If necessary the wider treads can be used up to 30 in. The crawler unit is applicable to any standard 4-wheel truck.

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The brawn of a prize-fighter, like that of a shovel, counts for little or nothing if his foot-work is second-rate or his feet and legs are weak.

The Underpinning Counts Big!

The business end of a shovel, like the business end of a prize-fighter, is out at the end of the arm. But the business end is useless every time the underpinning weakens or goes wrong. The

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Shovels Cranes and Draglines

Did you ever hear such

Read these reports— from all over the

From CALIFORNIA: **"I find the Gas+Air ERIE** much superior to other shovels, having more power and being faster, easier to handle, and cheaper to operate.

"During the past ten years I have had three different makes of shovels, and the Gas+Air ERIE has proven so satisfactory that I am always glad to recommend it to any prospective buyer."—*J. Catucci, Oakland, Calif.*

From MICHIGAN: **"The Gas+Air ERIE Shovel is the fastest machine we have ever used**— also very satisfactory as a dragline.

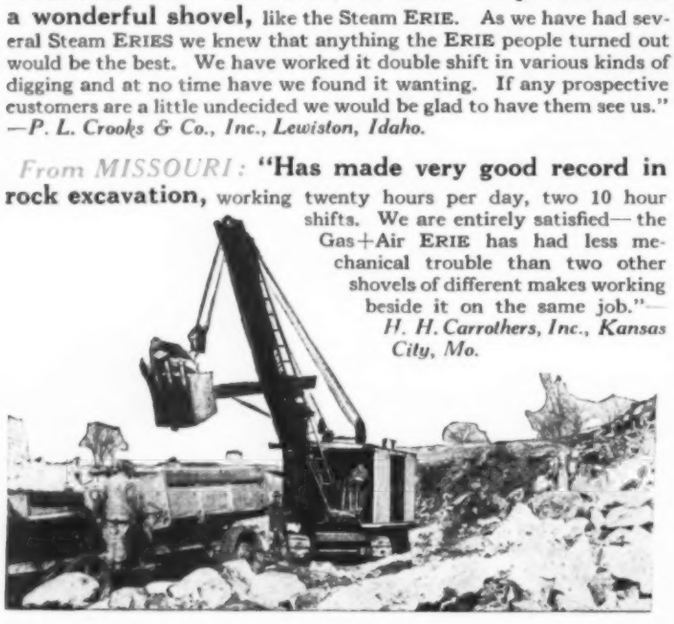
"As a shovel it handled a heavy spoil bank where the material was frozen very hard, and we were able to move more than with any other piece of equipment. In reliability and low upkeep, the Gas+Air ERIE has been more than satisfactory."—*The Bartling & Dull Co., Pontiac, Mich.*

From FLORIDA: **"Better output than any other gas machine** we have used or seen, and as to reliability, we have had no expense with this Gas+Air ERIE since we have had it.

"We have had good success handling hard materials and it is the most flexible gas shovel I have ever seen. I am very well pleased, and glad to recommend the Gas+Air ERIE to anyone who may be interested." —*C. H. Foster Construction Co., Buena Vista, Fla.*

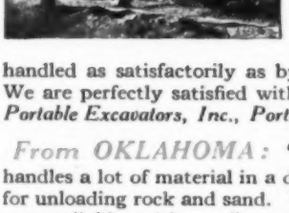
From IDAHO: **"Our Gas+Air ERIE has proved itself a wonderful shovel,** like the Steam ERIE. As we have had several Steam ERIES we knew that anything the ERIE people turned out would be the best. We have worked it double shift in various kinds of digging and at no time have we found it wanting. If any prospective customers are a little undecided we would be glad to have them see us." —*P. L. Crooks & Co., Inc., Lewiston, Idaho.*

From MISSOURI: **"Has made very good record in rock excavation,** working twenty hours per day, two 10 hour shifts. We are entirely satisfied— the Gas+Air ERIE has had less mechanical trouble than two other shovels of different makes working beside it on the same job."— *H. H. Carrothers, Inc., Kansas City, Mo.*



And the operator reports: "This Gas+Air ERIE has done rock work heavy enough for a much larger shovel. The slope has been shot in 35 and 45 foot drill holes, and it is a common thing to load a five-ton truck with one rock. In this hard work the Gas+Air ERIE has been going 20 hours a day. Can truthfully say that I like the Gas+Air ERIE better than any other shovel I have ever operated."—*J. H. Horton.*

From OHIO: **"We have lifted sewer tile weighing 9 tons,** which gives an idea of the Gas+Air ERIE'S digging power. Have dug clay with shovel dipper, and used the Gas+Air ERIE as a crane with clamshell bucket for unloading from cars. It has worked every day, with very low upkeep cost."— *Iliff Bros., London, Ohio.*



From OREGON: **"Gas+Air ERIE is better than we expected.** Has been excavating for a large trunk sewer, starting with a dragline bucket and changing over to clamshell when the ditch became so deep that it required bracing.

"Both dragline and clamshell were handled as satisfactorily as by any steam crane we have ever used. We are perfectly satisfied with the Gas+Air ERIE."— *Hoisting and Portable Excavators, Inc., Portland, Ore.*

From OKLAHOMA: **"Our Gas+Air ERIE is fast**— handles a lot of material in a day's work, used as crane with clamshell for unloading rock and sand. We have also found the Gas+Air ERIE very reliable, with small cost."— *Rightmire & Baldwin, Ponca City, Okla.*

From MINNESOTA: **"We think the world of our Gas+Air ERIE.** In the first six months we had it, we took in a big part of the cost in rentals. The Gas+Air ERIE has all kinds of power, never stalls, is fast, handles like a steam machine, and is very economical to operate."— *R. J. Kapphan Contracting Co., Duluth, Minn.*

From CALIFORNIA: **"Gas+Air ERIE outdug them all,** both in yardage and in handling the tough shale with greater ease. We had it working in a cut with two other shovels, including a gasoline shovel of another make, and there was no comparison.

"The cost of operation is also in favor of the Gas+Air ERIE. It is very hard to put our appreciation of this machine into words, but we would be glad to have you refer anyone to us." *Theodore Meyer, Vice-President Meyer Bros., San Francisco, Calif.*

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"boosting" of any machine?

country—from owners of Gas+Air ERIES

From INDIANA: **"More than pleased with the Gas+Air ERIE**— sorry that I've been without one as long as I have. Should have had one long ago."— *M. Edward McGuire, Indianapolis, Ind.*

From NEW JERSEY: **"We think the Gas+Air ERIE is the most reliable shovel made**— wonderful! There's nothing better for output, and we have found it very reliable in handling hard material, and successful in any hard job we take. It has also saved money in operating cost."— *Corbisello Bros., Cliffside Park, N. J.*

From KENTUCKY: **"Can highly recommend this Gas+Air ERIE for production**— we are completing our season's work and want to express our satisfaction. This shovel has been in continuous operation for the past eight months every day with the exception of rainy days. It has proved to be fast and powerful, and we are very much pleased with the work it has done.

"This company owns three other shovels and we believe the Gas+Air ERIE Shovel handles at least 25 to 30% more material."— *Henry Bickel Co., Louisville, Ky.*

From NORTH CAROLINA: ***(see photo above)*** **"Best shovel on the market today,** judging from my own experience, and information from others. And we have seen them all.

"Our engineer has been able to handle hard materials with much more ease, and with better daily output than we have ever been able to obtain with any other shovel. He says that in every way the Gas+Air ERIE is the best shovel he has seen.

"Upkeep has been remarkably low and I believe will continue so, as working parts are in perfect condition."— *W. E. Graham, Mt. Ulla, N.C.*

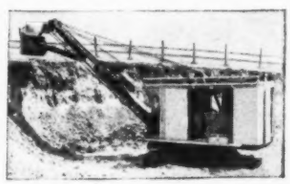
From PENNSYLVANIA: **"Our Gas+Air ERIE handles hardpan like ordinary excavation,** also breaks up frost quicker and better than our other shovels. Its output has been very good, and this Gas+Air ERIE has been reliable with only negligible upkeep cost."— *Sweeney Bros., Scranton, Pa.*

From OKLAHOMA: **"Want to tell how well pleased we are** with the Gas+Air ERIE. It has come up to our expectations in every way, and we feel qualified to say that it is the best gas machine on the market. Have averaged between 800 and 1,000 cu. yds. per day. Also dug hard white shale with exceedingly good satisfaction, where only the best equipment could handle it."— *W. M. McMichael, Tulsa, Okla.*

From WASHINGTON: **"Did not think a gas shovel could be made, to dig as well as steam.** For a number of years I operated steam shovels myself, and have stayed away from gas shovels until we saw the Gas+Air ERIE.

"Have been more than pleased—last month we moved 15,000 yards, extremely hard material but dug it with ease. Always glad to speak a good word for the Gas+Air ERIE"— *Wilburn & Stone, Inc., Seattle, Wash.*

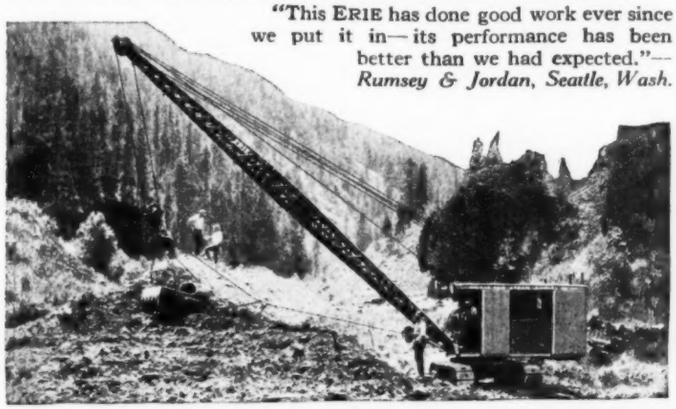
From CALIFORNIA: **"Reliability perfect, no trouble, repair parts practically nothing.** Output has been much better than we figured it would be, both on shovel and clamshell work. The service given by our Gas+Air ERIE has been wonderful, and we believe it will outclass anything its size, anywhere."— *Granite Construction Co., Watsonville, Calif.*



From MICHIGAN: **"Gas+Air ERIE is much faster** than any other, also easier to operate. Our machine has worked fine both as a shovel and clamshell crane. Upkeep has been very low, and the Gas+Air ERIE is absolutely reliable."— *McCordic Construction Co., Detroit, Mich.*

From WASHINGTON: **"Gas+Air ERIE has been working 18 hours per day,** first as a dragline handling loose rock and large boulders, then as a shovel in solid rock excavation.

"This ERIE has done good work ever since we put it in—its performance has been better than we had expected."— *Rumsey & Jordan, Seattle, Wash.*



And the operator on this machine writes: "Have been running shovels twelve years, and never had any gasoline or gas-electric that could compete with the Gas+Air for speed, power, or ease of operation. After nine months of working two 9-hour shifts, every day of the week including holidays, this Gas+Air ERIE is in better condition than any other machine in the vicinity. The motor and compressor are as good as the day they were placed there."— *Robert C. Klietha, operator.*

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Control of Concrete by Water-Cement Ratio through

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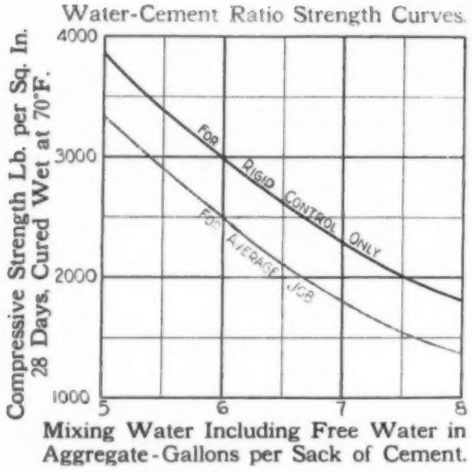

The graphs above are being recommended with great benefit to the concrete industry as a basis for control of concrete by the water-cement ratio method. Two water-cement ratio curves are shown, one for the rigid control job, the other for the average job control. These curves are the result of the most exhaustive tests and research.

These curves demonstrate that under rigid control with the same amount of cement and the same water-cement ratio, the strength of concrete is approximately 500 pounds greater than for average job control. This relation prevails at any point on the curves between 1500 and 4000 pound strength concrete.

The Blaw-Knox Inundation System is the only mechanical equipment on the market for rigid and practical control of *all* the ingredients for concrete. Inundation contributes to the concrete construction job a type of control which allows full advantage being taken of this margin of 500 pounds of strength. This 500 pounds of strength is the equivalent of approximately 10% of the cement which can be saved by rigid control through Inundation.

The Blaw-Knox Inundation System is a complete proportioning machine which not only controls the ratio of water to cement, but accurately proportions the sand and the stone for the successive batches, compensating for the bulking action of moist (job) sand at the same time.

The Inundator is adjustable for the water-cement ratio required and the proportions desired.

The Blaw-Knox Inundation System is rapid, accurate, mechanical, and is operated by the average laborer on the job. Designed to suit the size of the job at a surprisingly low cost.

Cement is measured by sack or by weight as desired. A special mechanical measuring or charging device can be furnished for the cement.

The coarse aggregate is measured by volume in a standard Blaw-Knox Volume Batcher.

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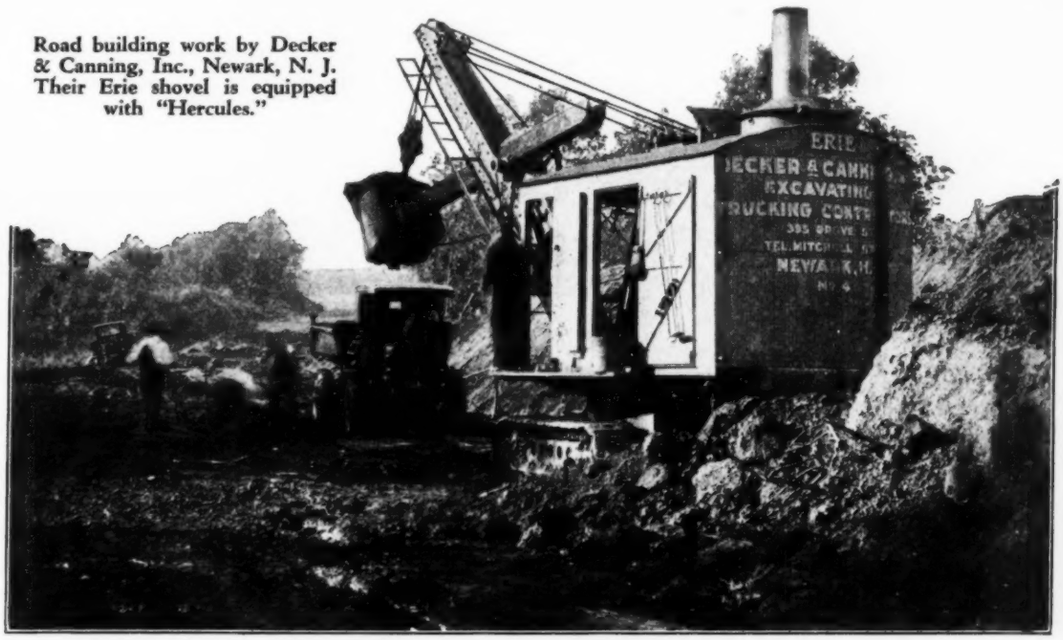

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—and what this means to you!

Any grader that will stand up satisfactorily, day after day, under these extreme conditions, should be able to make a truly remarkable showing on the less strenuous work ordinarily required of a grader. That such is really the case is shown by the fact that Austin Graders almost 40 years old are still on the job doing satisfactory work.

Write for a copy of the new Leaning Wheel Grader Catalog today!

THE AUSTIN-WESTERN ROAD MACHINERY CO.

400 North Michigan Avenue, Chicago, Illinois, U. S. A.

There were more BEAR CATS built and sold during 1926 than ALL the other ½-yard machines put together

THE BYERS MACHINE CO., Ravenna, Ohio

Builders Also of Byers Truckrane Sales and Service Throughout the Country

BYERS BEAR CAT

"Caterpillars" keep to a clockwork schedule—

Earth moves from steam-shovel to dump without a hitch when "Caterpillar" track-type tractors supply the motive power.

One driver for two, three or more wagons . . . positive traction to conquer slippery mud or rough going . . . power, speed and dependability to make the round trip with clock-like regularity.

"Caterpillar" tractors can cut costs and pyramid profits for YOU!

BETTER
QUICKER
CHEAPER

Prices

2-TON . . . $1850
Peoria, Illinois

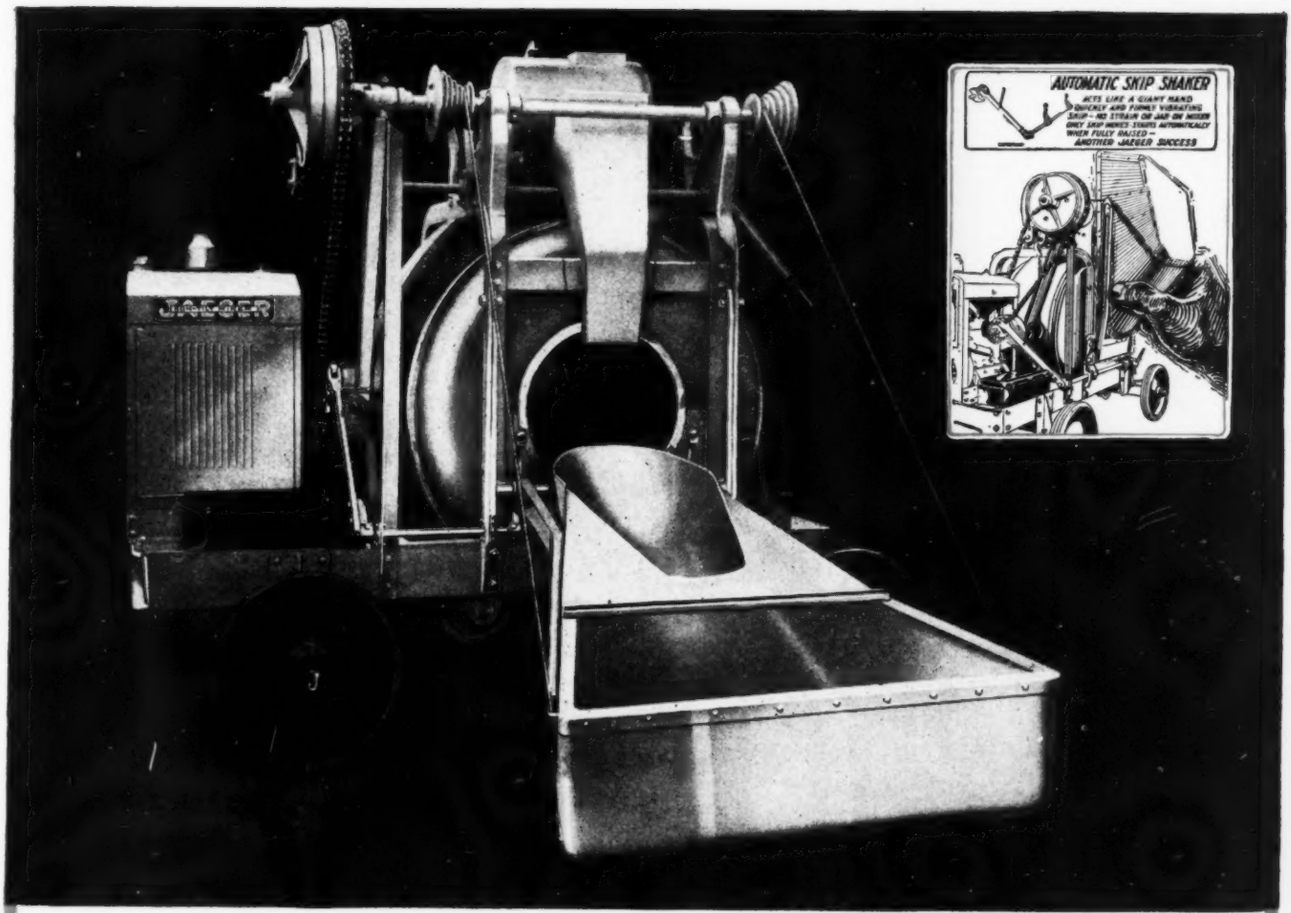
THIRTY . . $3000
Peoria or San Leandro

SIXTY . . . $5000
Peoria or San Leandro

There is a "Caterpillar" *Dealer Near You*

CATERPILLAR TRACTOR CO.
Executive Offices: San Leandro, California, U. S. A.
Sales Offices and Factories:
Peoria, Illinois San Leandro, California
Distributing Warehouse: Albany, N. Y.
New York Office: 50 Church Street
Successor to
BEST C. L. Best Tractor Co. The Holt Manufacturing Company HOLT

CATERPILLAR
REG. U.S. PAT. OFF.



JAEGER OVERSIZED ONE BAGGER HOLDS TWO BAGS 1-2-5 MIX

All Steel Construction

50% Stronger—½ Ton Lighter

JAEGER NORTHILL MIXERS

100% Roller Bearings

Direct Drive—No Countershaft

Jaeger Ten—Weighs and costs about same as ordinary one bag mixers, though it holds two bags up to 1-2-5 mix, the most widely used proportion today—Direct drive using heat treated steel reduction gears running in oil and eliminating countershaft, makes a shorter and more compact outfit than old 7s mixers — no more pounded or battered buckets when you use Jaeger's latest success, the Automatic "Skip Shaker"—Faster Discharging.

JAEGER MIXERS BUILT IN 3½ S TO 28S CAPACITIES

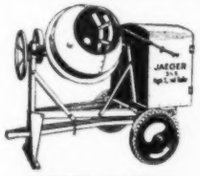
Write for Prices and Convenient Terms

THE JAEGER MACHINE COMPANY

800 DUBLIN AVE COLUMBUS, OHIO

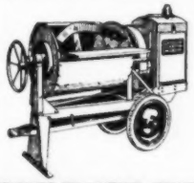
Over 100 service stations, distributors and branches located in all the principal cities—Standardize on Jaeger and profit by our quick service.

Most Widely Used Mixer in the World

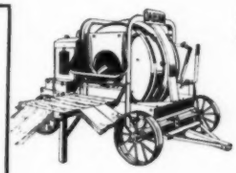


JAEGER TILTERS
Power Loaders
Low Chargers
3½, 5, 7, 10, 14 ft. sizes
36 Models

The Power Hoe for Plasterers or Bricklayers



JAEGER PLASTER MIXER
Mixes Mortar—Sand or Patent Plaster—or Stucco
Cuts Costs in Half



LOW CHARGERS

MAIL THIS SLIP TO-DAY FOR BIG CATALOG

Jaeger Machine Co.
800 Dublin Ave., Columbus, Ohio.
Please send catalog, prices and terms on
☐ NON-TILT MIXERS ☐ PLASTER MIXER ☐ TILTING MIXERS

Date .....

Name .....

Address .....

City ..... State .....

DO YOU WANT SPEED?
"HERE IT IS!"

Universals possess speed. They run from job to job at motor truck speed, 10, 15 or 20 miles per hour.

They go any place you can take a motor truck and just as quickly.

It pays to use Universals on many jobs you would not think of using a large, slow machine on—because Universals are fast getting to and from the job. They reduce moving costs of time and money—and on the job they easily do the work of 20 to 30 men—at the cost of 3 to 4.

(Trench Hoe Attachment)

WRITE FOR BULLETIN 36-E

The Universal Crane Co., 977 Swetland Bldg., Cleveland, Ohio

REPRESENTATIVES IN ALL PRINCIPAL CITIES

"LARGEST AND ONLY EXCLUSIVE BUILDERS OF TRUCK CRANES"

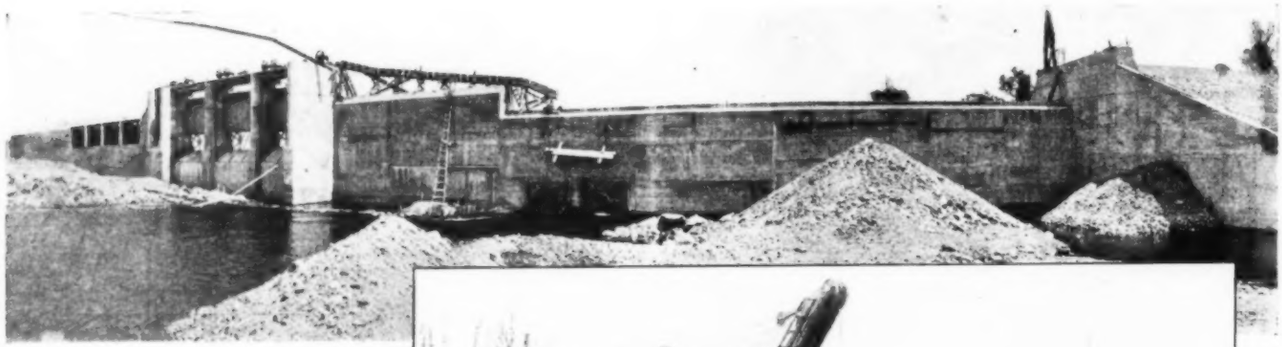
Attachments

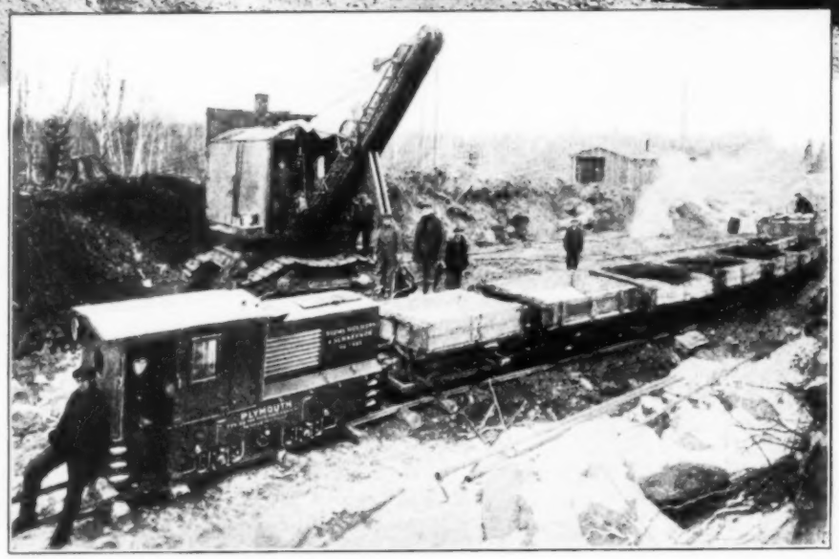
Clamshell
Dragline
Trench Hoe
Backfiller
Hook Block
Snow Bucket
Magnet

Mountings

Motor Truck
Crawler
Trailer
Flat Car
Yard Truck
Portal Pier
Etc.

Plymouth Gasoline Locomotives Used on Winton Dam





Winton Dam, in northeastern Minnesota, was constructed by Siems, Helmers and Schaffner, Inc., General Contractors, of St. Paul, Minn., for the Minnesota Power & Light Co., Ralph D. Thomas, Minneapolis, Designing Engineer.

The Dam, only part of which is shown in the cut, is about 2,600 feet long, including non-overflow concrete retaining walls and earth dykes, from 40 to 50 feet high.

The Power House, 35 x 120 feet, has a concrete substructure with brick and steel superstruction. All concrete structures rest on solid rock.

THREE Plymouth 6 ton Gasoline Locomotives were used by Siems, Helmers and Schaffner, Inc. in the construction of Winton Dam, built in record-breaking time.

The excavation hauled by the Plymouths consisted of hard pan, boulders and solid rock.

Most of the 25,000 yards of concrete was poured in extremely cold weather, with temperatures as low as 20° below zero, without loss of time or freezing of concrete.

For Hydro-Electric and Irrigation projects, Bridges, Railroad, Highway and General Construction work, big or little, there is no haulage unit so efficient as the Plymouth.

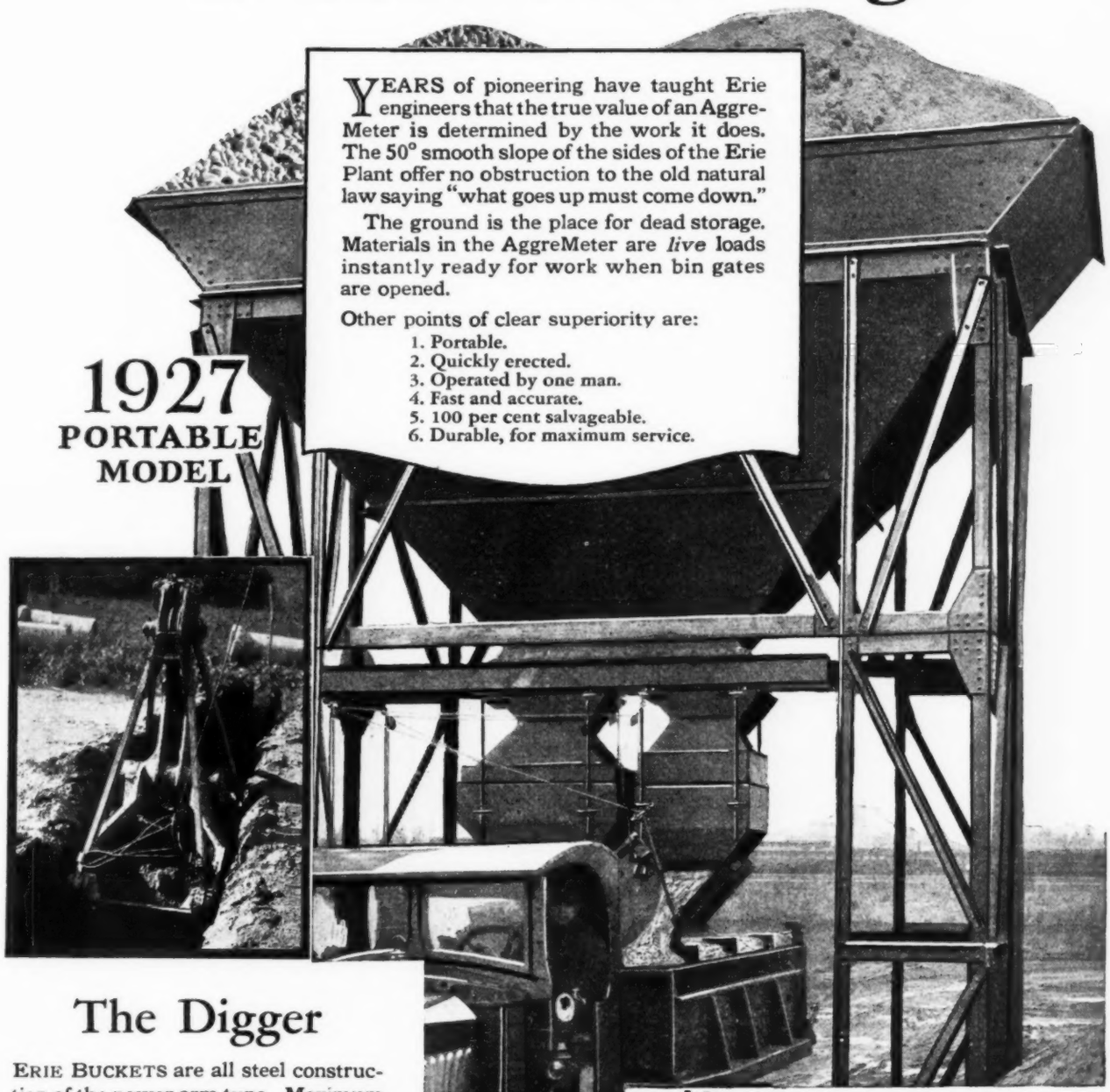
Write for literature.

PLYMOUTH LOCOMOTIVE WORKS *(The Fate-Root-Heath Co.)* PLYMOUTH, OHIO

PLYMOUTH

Gasoline Locomotives

The *ERIE* Aggre Meter is Self-Cleaning



YEARS of pioneering have taught Erie engineers that the true value of an AggreMeter is determined by the work it does. The 50° smooth slope of the sides of the Erie Plant offer no obstruction to the old natural law saying "what goes up must come down."

The ground is the place for dead storage. Materials in the AggreMeter are *live* loads instantly ready for work when bin gates are opened.

Other points of clear superiority are:

1. Portable.
2. Quickly erected.
3. Operated by one man.
4. Fast and accurate.
5. 100 per cent salvageable.
6. Durable, for maximum service.

1927 PORTABLE MODEL

The Digger

ERIE BUCKETS are all steel construction of the power arm type. Maximum closing power and designed to *outdig any other bucket* of equal weight. Special types on short notice, standard types and sizes stocked for quick delivery.

THE
ERIE STEEL CONSTRUCTION CO.
ERIE, PENNA.

Mail the coupon ~

The Erie Steel Construction Co., Erie, Penna.
You may send me information on

☐ AggreMeter Plants for.....

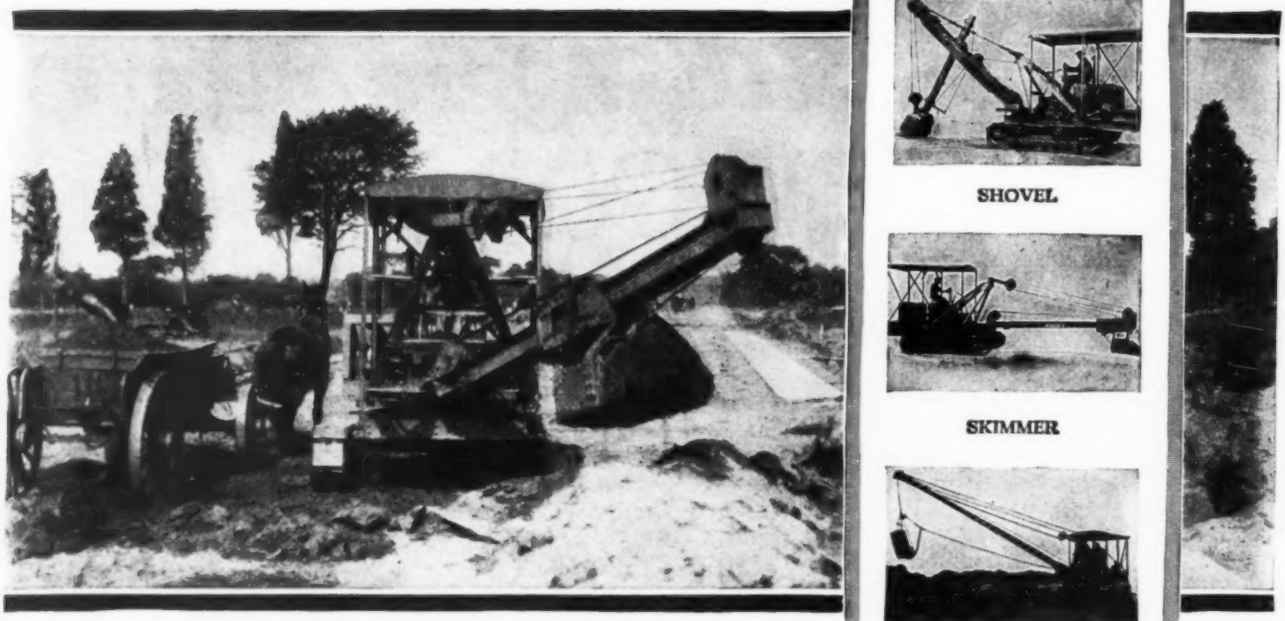
☐ Buckets for.....

Name .....

Address.....

Town and State .....

SM 4-27



SHOVEL

SKIMMER

DRAGLINE

CRANE

It Comes Right Back to Earning Capacity

When you stop to consider that, at the outset the Insley Excavator costs less than almost any piece of excavating equipment on the market, and that furthermore, under average working conditions, it will handle as much work as you will ever require, you will correctly conclude that the Insley is the machine for you, because it has **earning capacity.**

When you see one in operation, talk to its owner, find out how much work it does, and how low its operating cost is, see how much money it is making for him, you will realize more than ever, that in buying an Insley, you are buying **earning capacity.**

Plenty of work, profit, money in the bank when the job is done, freedom from worry, low first cost, low interest charges, etc. These considerations and a dozen others spell **earning capacity,** which is what you get when you buy an Insley Excavator.

Write for Catalog No. 51.

Insley Manufacturing Co.

Engineers and Manufacturers

INDIANAPOLIS

These Insley Owners got earning capacity

A job getter and a money maker.—J. W. Bartels, Dayton, Ohio.

Saves me over $100.00 a day on loading.—W. F. Flowers, St. Petersburg, Fla.

Paid for itself in four months. It will work for us from now on.—Pringle and Buerkle, Batavia, Ohio.

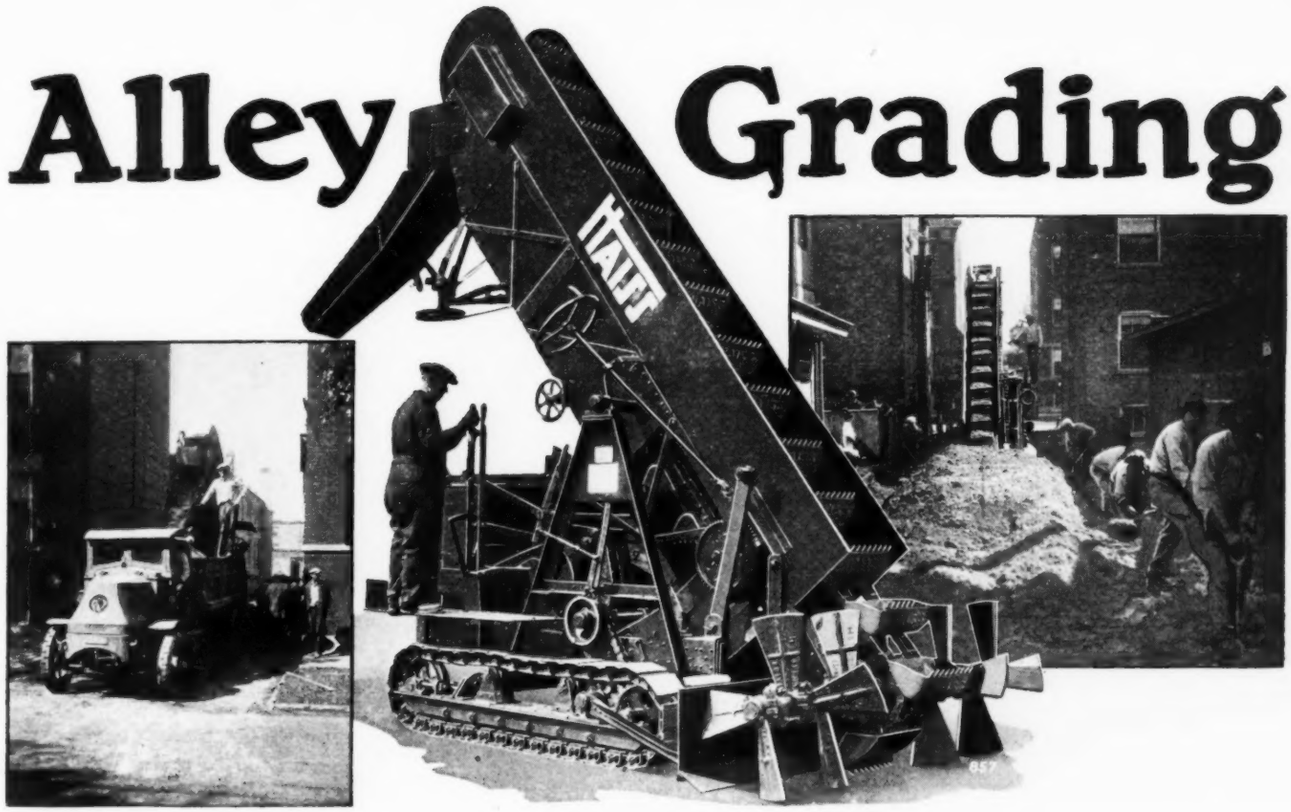
I wouldn't take $10,000 for my Insley if I couldn't get another one.—E. H. Derr, LaCrosse, Wis.

513

THE INSLEY EXCAVATOR

for SHOVEL · DITCHER · CRANE SKIMMER AND DRAGLINE WORK

Alley Grading



If performance records are a measure of comparison, such work is a job for Haiss Loaders

On Frenzel's work a Haiss Loader has been repeatedly timed in loading a 6-yard truck in 3½ minutes.

40 yards in 28 minutes is another average performance.

We have cost data to quote to those who are interested in Loader digging-work of this kind.

Probably the biggest operator in this sort of work is the contracting firm of Frenzel Bros. of Chicago. They have graded miles and miles of alleys in the last few years. They are surely qualified by experience to know what's what in the cost of excavating.

The record stands that Frenzel has tried Loaders, Power Shovel and other means of grading—kept cost and speed records—***and knows that Haiss Loaders put up his loads fastest and at least overall cost.*** Frenzel owns and operates 5 Haiss Loaders.

There are thousands of miles of alleys in hundreds of cities that will sooner or later need paving. The logical way to excavate the accumulated spoil is to plow it and ***load with a Haiss Loader.***

For all-purpose utility and ability to stand-up to hard knocks and heavy digging, the Haiss Loader is your first and logical choice. Ask for Catalog 523.

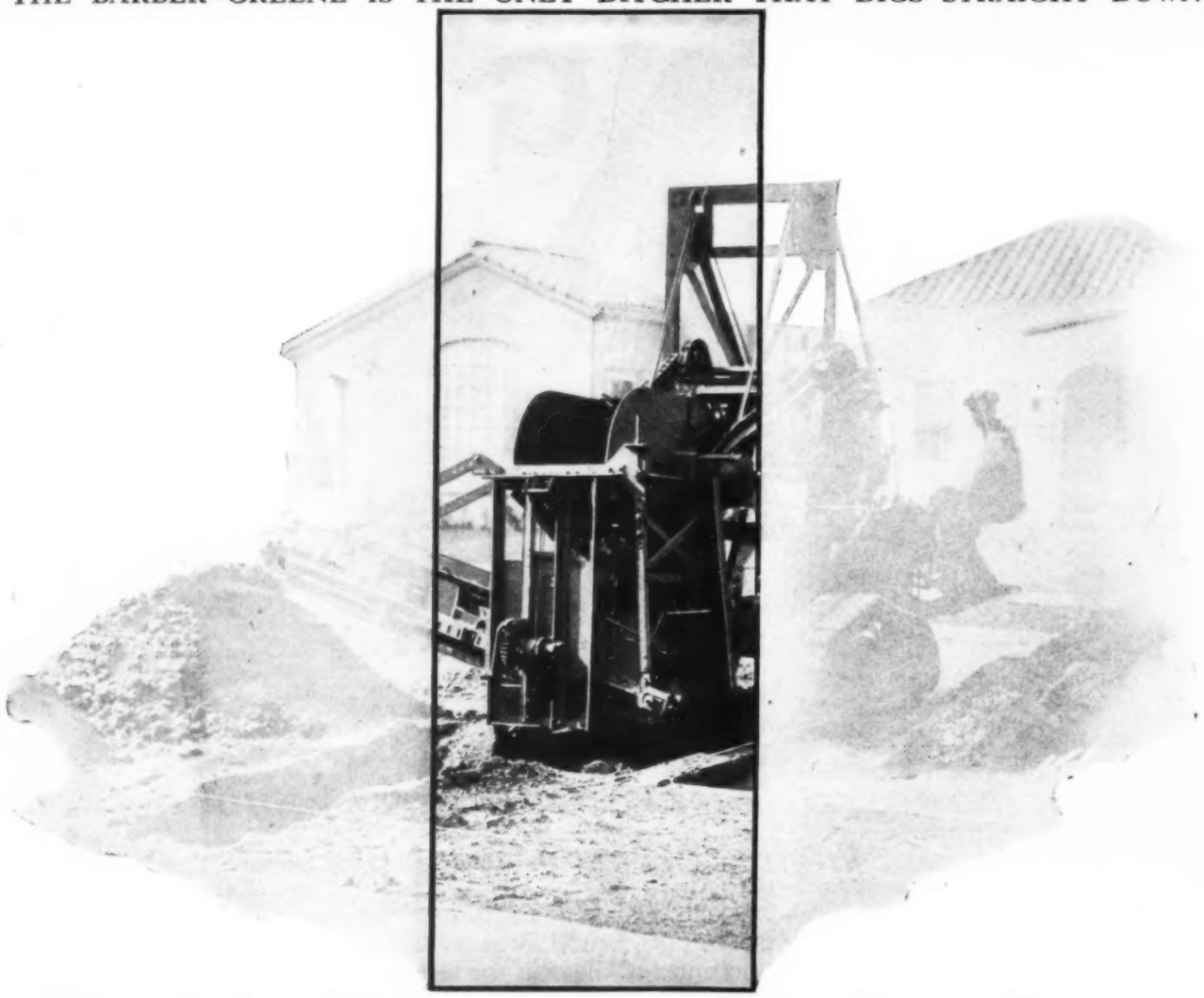
HAISS PRODUCTS include also

- Portable Belt Conveyors for general utility
- Haiss Clamshell Buckets of power-wheel, lever-arm and block-and-tackle types of closing gear.
- Elevators, Screens and Conveyors for sand, gravel and crushed stone plants
- Hopper Gates, Chutes and kindred equipment.

The George Haiss Manufacturing Co., Inc.
139th Street and Rider Avenue
New York, N. Y.

HAISS

THE BARBER-GREENE IS THE ONLY DITCHER THAT DIGS STRAIGHT DOWN



Straight Down — *to New Low Costs*

VERTICAL boom construction makes the Barber-Greene so compact and nimble that it cuts service laterals without shovel help — at a cost far below that of hand labor.

—so speedy that it has ripped off a mile a day on oil-field pipe lines.

—so husky that it cuts through Florida's coral rock without breaking a shaft.

As for costs—a Texas Barber-Greene dug over 9,000 feet of gas trench at 4¢ above the cost of backfilling.

There are few words in this book—it's too full of pictures and cost records that illustrate a new field of contracting profits. A postcard brings your copy of "Ditching Snapshots and Records." Send it today.

BARBER-GREENE COMPANY, 530 W. PARK AVE., AURORA, ILLINOIS

Barber-Greene

Barber-Greene Ditcher

Representatives in 50 Cities

DISC FEED LOADERS — VERTICAL BOOM DITCHERS
STANDARDIZED PORTABLE AND PERMANENT BELT CONVEYORS
SNOW LOADERS — CAR UNLOADERS — COAL LOADERS

Records like this are worthy of medals

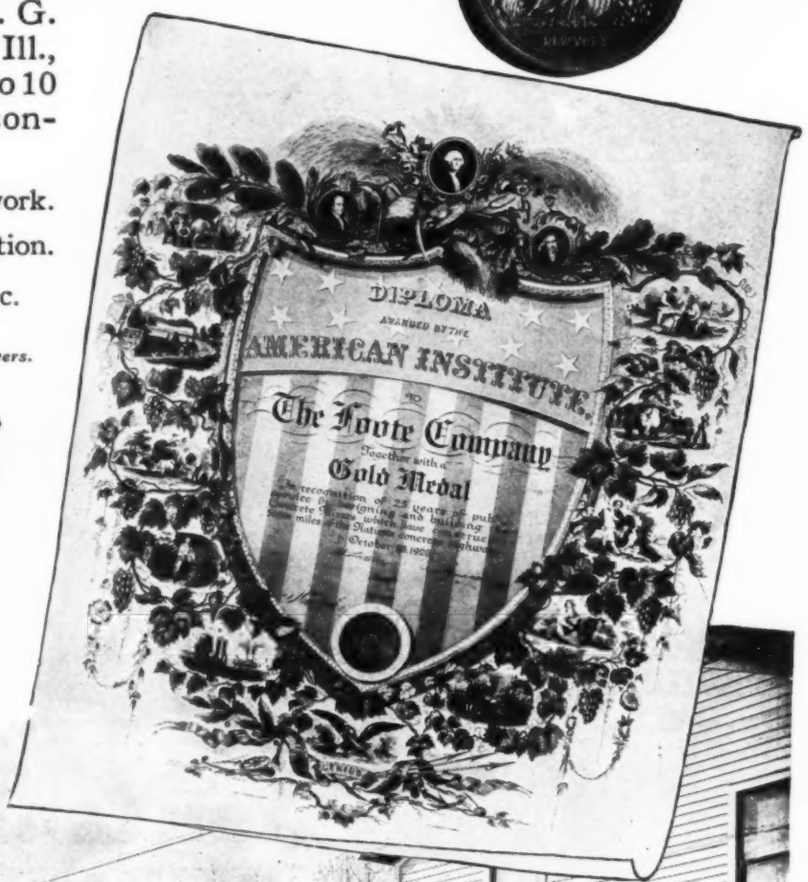
IN 1926, a Timken equipped MultiFoote owned by H. G. Goelitz Co., of Oak Park, Ill., placed 263,100 sq. yds. of 6 to 10 inch single and reinforced concrete pavement.

This includes both alley and street work.

Yardage like this deserves recognition.

THE FOOTE COMPANY, Inc.
of Nunda, N. Y.
The world's largest exclusive builders of road pavers.

MULTIFOOTE
The Paver with Timken Bearings



Frank E. Hall
152 West 42nd Street
New York, N. Y.

Multifoote Sales Company
2811 W. Fulton Street
Chicago, Ill.

Burton Franklin
Volunteer Building
Chattanooga, Tenn.

Wilcox Brothers, Inc.
588 Chenango Street
Binghamton, N. Y.

E. J. McHarg & Company
31 Crestmont Road
Binghamton, N. Y.

Edward R. Bacon Company
Folsom at 17th Streets
San Francisco, Calif.

There's a Dam Near You Built of

SMITH

Mixed
CONCRETE

—they're all over the U. S., Mexico, Africa, Japan

"Dam!" said the Contractor— "Let's get a Smith Mixer!"

On the long, steady concrete pouring jobs—where production resembles that of the most efficient manufacturing plants—there you will find Smith Tilting Mixers.

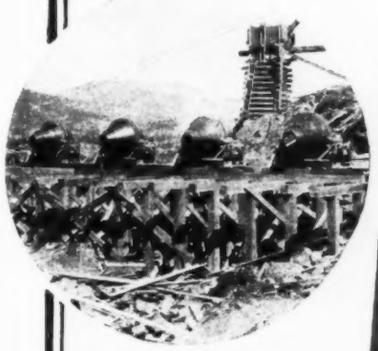
The speedy, perfect mixing characteristics of the Smith Double Cone Drum, the small arc through which the drum need be tilted for complete discharge—these features, saving a fraction of a minute a few hundred times a day, spell the increased efficiency vital to profit on long, steady production.

Smith dependability, too, stands out strong on the long, steady pull. When checking over dam jobs, for instance, Smith Mixers sold 10, 15 or more years ago have a habit of bobbing up—still on the job.

The T. L. SMITH COMPANY
1084 32nd Street, Milwaukee, Wis.
Sales Offices and Service Stations in All Principal Cities

A partial list of Smith-Mixed Dams

Bellows Falls Dam, Vermont
Rio Dam, Port Jervis, N. Y.
Orono Dam, Orono, Me.
Conowingo Dam, Conowingo, Md.
Cheathaven Dam, Cheathaven, Pa.
Clarion Dam, Clarion, Pa.
Ocowe Dam, Cleveland, Tenn.
Louisville Hydro-Electric Dam, Louisville, Ky.
Great Falls Dam, Great Falls, Mont.
Kimble Dam, Kimble, Pa.
American Falls Dam, American Falls, Idaho
Wilson Dam, Muscle Shoals, Ala.
Cushman Dam, Takoma, Wash.
Bartlett's Ferry Dam, Columbus, Ga.
Isle Maligne Dam, Isle Maligne, Can.
Guernsey Dam, Wyoming
Nitrolee Dam, Nitrolee, S. Carolina
U. S. Engineer's Dam 42, Rockport, Ill.
Olmos Dam, San Antonio, Tex.
Saw Pit Dam, Monrovia, Calif.
Keokuk Dam, Keokuk, Iowa
Medina Dam, San Antonio, Tex.
Arrow Rock Dam, Arrow Rock, Idaho
Martin Dam, Cherokee Bluffs, Ala.
Lock No. 18, Alabama
Shaver Lake Dam, Fresno, Calif.
San Rosalia Dam, Chihuahua, Mex.
Mount Shasta Dam, Calif.
White Salmon Dam, Oregon
Exchequer Dam, Merced, Calif.
Hauser Lake Dam, Hauser Lake, Mont.
Lake Spaulding Dam
Oi Dam, Japan
Roosevelt Dam
Elephant Butte Dam, N. Mexico



Four 28-S Smith Tilting Mixers used in the building of Lake Spaulding Dam in 1912-1913. Two of these same Smiths were used in the construction of the Mt. Shasta Dam in 1925

Be sure to obtain your copy of Catalog 526—an unusually interesting and complete description of mixers, pavers, and unusual concrete jobs

Smith Tilting Mixers are built in the following sizes: 2½, 3½, 5, 7, 10, 14, 21, 28, 40, 56 and 112 cu. ft. per batch; Smith Non-Tilting Mixers: 5, 7, 10, 14, 21 and 28 cu. ft. per batch; Smith Paving Mixers: 27-E

Cut Here

THE T. L. SMITH COMPANY
Milwaukee, Wisconsin

Please send me a copy of your Mixer Catalog No. 526.
We are especially interested in a ..... mixer.
(Size of mixer)

Name .....
Address .....
City ..... State .....

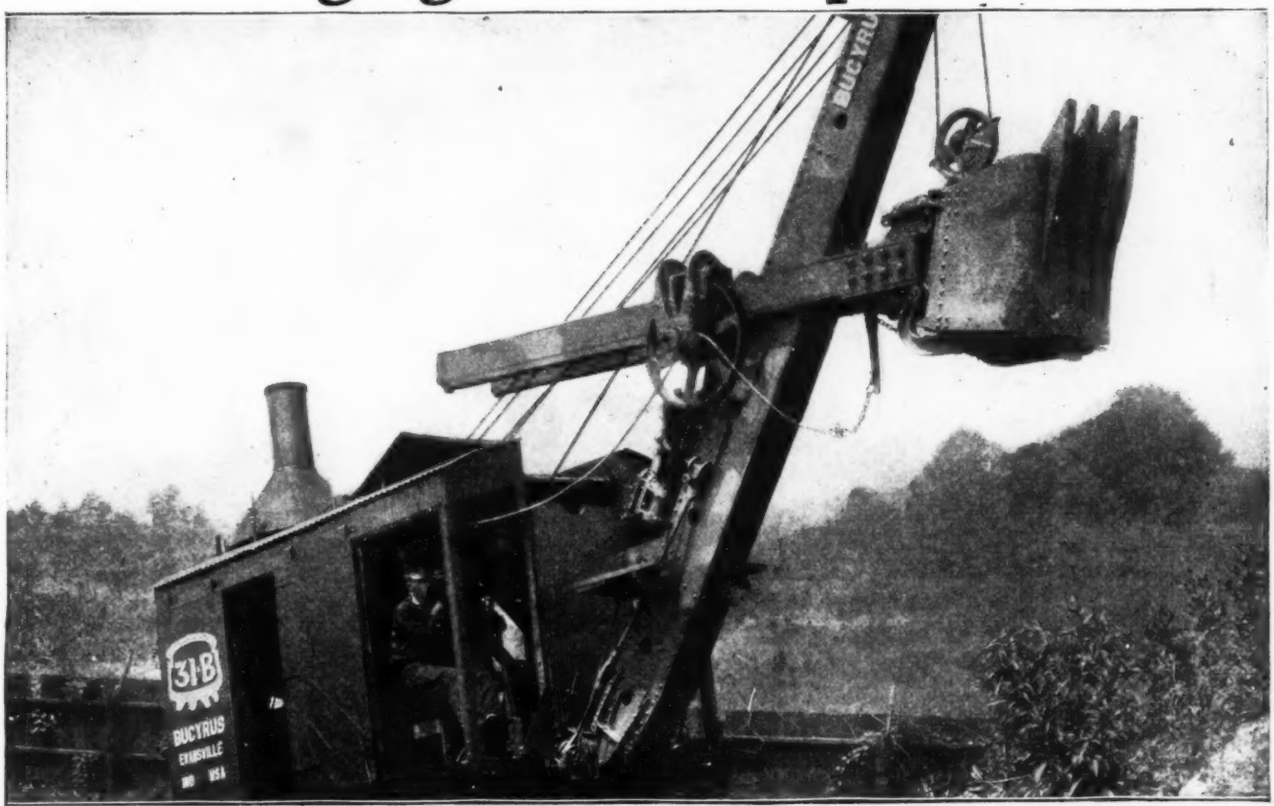
Date .....

1084

1084

SMITH MIXERS

Swinging more dirt per hour



Lower per yard cost—bigger marginal profit

This new 31-B swings faster, hoists faster and digs faster. It moves more dirt per hour than other 1-yard shovels. On a recent basement job it dug at the rate of 2 yards per minute—it loaded out 900 yards of dirt in 7 hours. These big daily yardages help to cut the digging cost per yard—lower per yard cost means a bigger margin of profit for the contractor to work on. And this margin of profit is protected—practically insured—by the famous Bucyrus long-life construction. When one year's service is over, it is good for the next, and the next, and the next. One Bucyrus 40 years old is still in active service—going strong.

The Bucyrus box girder boom is the lightest, strongest boom construction used on revolving shovels today. Less counterweight is needed—the result is less flywheel effect and a faster swing.

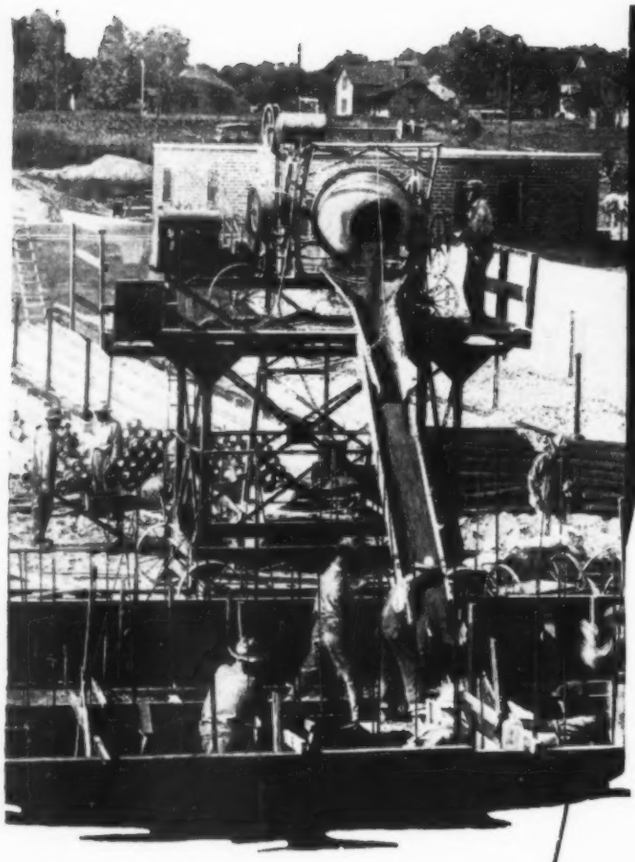
You know what you want in a shovel—how much dirt it should move per hour—what the cost per yard should be—and how much profit you would like to make. Just check the Bucyrus 31-B with other 1-yard shovels. A post card brings you Bulletin C-311-2. Send for it today.

BUCYRUS COMPANY, South Milwaukee, Wisconsin

BUCYRUS

NEW YORK CHICAGO BIRMINGHAM SAN FRANCISCO PITTSBURGH TOKYO LONDON

766



a 50% Saving

J. A. Dunkel Construction Co.
General Contractor

Webster City, Iowa

Construction Machinery Company,
Waterloo,
Iowa.

Gentlemen:

The Wonder "10-S" with extended track loader has worked perfectly on the entire job with no delays whatsoever. We were able to mix and place the concrete at a fifty per cent saving over any other method.

JAD'S

Yours very truly,
J. A. DUNKEL CONSTRUCTION COMPANY
J. A. Dunkel
Pres.

With a WONDER MIXER

THIS MAN DUNKEL USED HIS HEAD.

He used his **WONDER** 10-S Mixer on an elevated truck.

He extended the **WONDER** track loader to the ground level.

Without investment in tower, chuting or placing equipment, he rolled the mixer around the job—poured 964 lin. ft. of 8½ ft. wall and saved 50% in placing costs.

Utilizing the extension feature of the **WONDER** track loader and the momentum of the **WONDER** pouring discharge, makes this possible with any standard **WONDER** Mixer.

The 1927 **WONDER** catalog clearly pictures and describes. It also contains proven reasons why thousands of contractors are turning to the **WONDER** Tilter in all sizes from 3½ cu. ft. to 14 cu. ft. mixed concrete per batch. Your copy is available. Send for it today. No obligation.

Six advantages you obtain in buying a **WONDER**

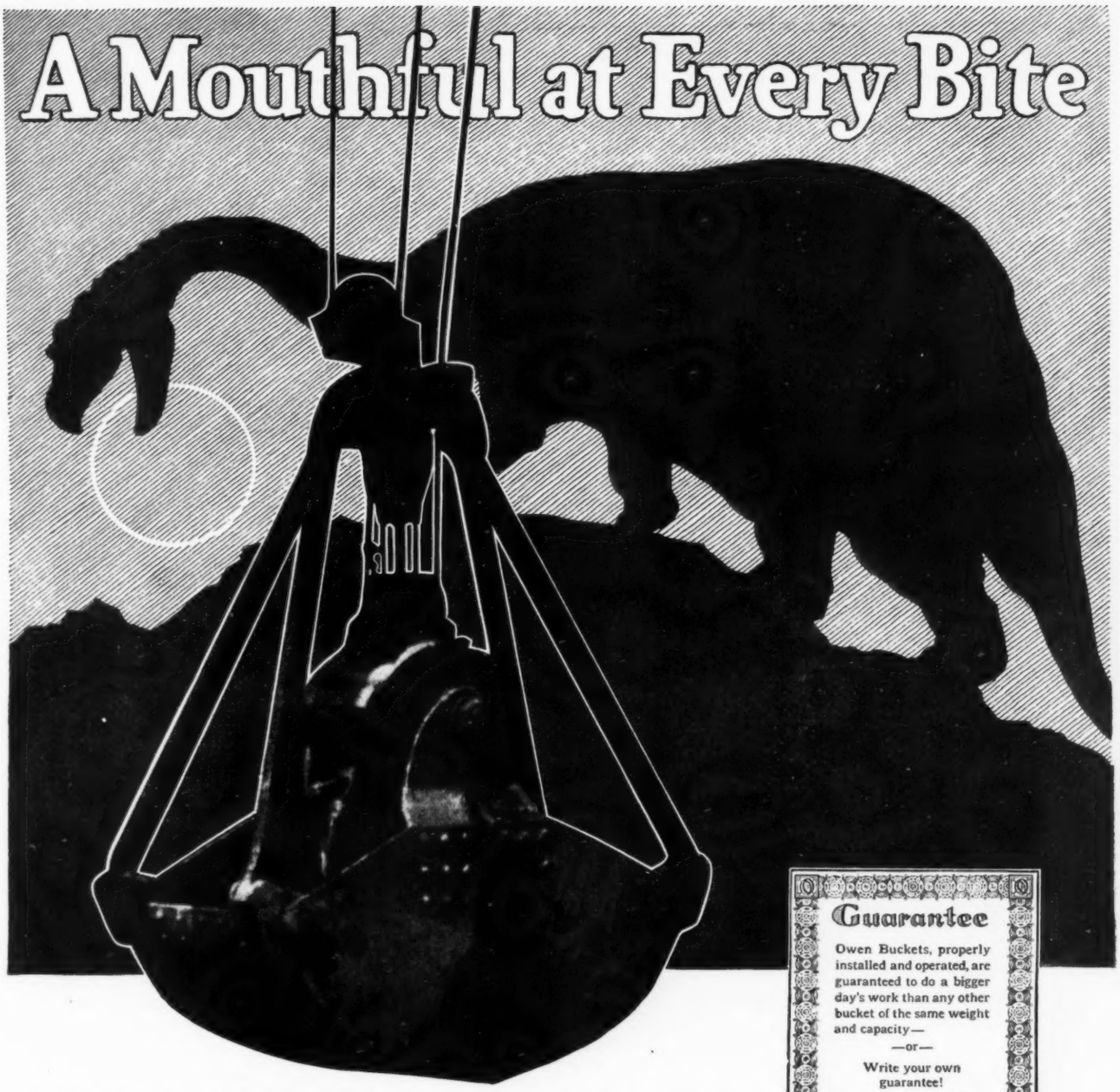
1. Simplicity.
2. More rapid discharge.
3. Perfect bearing protection.
4. Mixing drum that always cleans and is always clean.
5. Less bearing friction.
6. Adjustable mixing position.

Construction Machinery Company

403 Vinton Ave., Waterloo, Iowa

Stocks in All Principle Cities

A Mouthful at Every Bite



Guarantee

Owen Buckets, properly installed and operated, are guaranteed to do a bigger day's work than any other bucket of the same weight and capacity—

—or—

Write your own guarantee!

THE OWEN BUCKET CO.

Note the full protection this guarantee gives. You are taking no chance with an Owen Bucket.

THE tiny head of the Diplodocus had to eat enormous meals to take care of his huge body. The Owen ½ yard Narrow Type "J" Bucket is small but gets "A Mouthful at Every Bite" and satisfies a big crane.

To satisfy your crane you must use a bucket which utilizes its capacity and not one that is a handicap. Full loads, fast action, and continuous operation are guaranteed with an Owen Bucket, insuring efficient crane operation.

THE OWEN BUCKET CO.

6023 BREAKWATER AVENUE · CLEVELAND, OHIO

Atlanta	Boston	Dallas	Kansas City	Minneapolis	Philadelphia	St. Louis
Baltimore	Buffalo	Detroit	Los Angeles	New Orleans	Pittsburgh	San Francisco
Birmingham	Chicago	Fort Worth	Louisville	New York	Portland	Tampa
			Milwaukee			

Write for literature illustrating seven different types of Owen Buckets.

OWEN CLAMSHELL BUCKETS INSURE A BIGGER DAYS WORK

Owen Buckets

• RANSOME •

Excavation on site of the old Madison Square Garden. Two 14-S Ransome Mixers and Ransome chuting equipment are used by Starrett Brothers—an all Ransome job.

ANOTHER GIGANTIC JOB WHERE RANSOME DOES THE WORK!

Today—the most costly excavation ever made in New York where the old Madison Square Garden stood. Tomorrow—another New York "skyscraper"—the 36 story building and tower of the New York Life Insurance Company, designed by Cass Gilbert.

For its foundation, yards and yards and yards of concrete have been poured by two Ransome 14-S Standard Building Mixers and Ransome Chuting Equipment.

Another famous job that is "Ransome only."

Write for Bulletins

RANSOME CONCRETE MACHINERY CO.
DUNELLEN NEW JERSEY

REPRESENTATIVES

ALBANY, N. Y.
Sager-Spuck Supply Co., Inc.
ASHEVILLE, N. C.
North State Culvert & Machinery Co.
ASTATULA, Fla.
Prescott Machinery Co.
ATLANTA, Ga.
Henry G. Williams
BALTIMORE, Md.
Giles & Ransome
BIRMINGHAM, Ala.
Smith-Meadow Supply Co., Inc.
BOSTON, Mass.
The Clark-Wilcox Co.
BROOKLYN, N. Y.
John P. Fitzgerald
BUFFALO, N. Y.
The Wheeler-Murray Co.
BUTTE, Montana
Western Supply Co.
CANTON, Ohio
J. C. Neely & Co.
CLARKSBURG, W. Va.
Clarksburg Supply & Equipment Co.
CHARLOTTE, N. C.
W. Fred Casey Co.
CHATTANOOGA, Tenn.
Connor Sales Co.
CHICAGO, Ill.
Ransome Concrete Machinery Co.
CLEVELAND, Ohio
E. F. Pegg Co.
COLUMBIA, S. C.
Fred D. Marshall, Inc.
DALLAS, Texas
J. W. Bartholow Co.
DAVENPORT, Iowa
Allen R. Boudinot
DENVER, Colo.
Clinton & Held Co.
DETROIT, Mich.
W. H. Anderson Tool & Supply Co.
EL PASO, Texas
Roe L. Johnson
FORT WORTH, Texas
J. W. Bartholow Co.
HUNTINGTON, W. Va.
Banks-Miller Supply Co.
JACKSONVILLE, Fla.
Stanley & Gill Machinery Co.
LOS ANGELES, Cal.
Essick & Co.

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MEMPHIS, Tenn.
Pidgeon Thomas Iron Co.
MINNEAPOLIS, Minn.
Wm. H. Hale & Co.
MOBILE, Ala.
Lawrence-Goodling Co., Inc.
MONTREAL, Canada
Canadian Equipment Co.
NASHVILLE, Tenn.
R. L. Stockard
NEWARK, N. J.
Johnson & Dealaman Inc.
NEW HAVEN, Conn.
The Clark-Wilcox Co.
NEW ORLEANS, La.
Ole K. Olsen
NEW YORK, N. Y.
Fitzgerald & Hudson
NORTHPORT, N. Y.
P. G. McDonald
PHILADELPHIA, Pa.
Giles & Ransome
PITTSBURGH, Pa.
Ruane Machinery Co.
PORTLAND, Ore.
McCraken-Ripley Co.
RICHMOND, Va.
Ed. P. Phillips Machinery Co.
ROCKFORD, Ill.
Swords Bros. Co.
SAN ANTONIO, Texas
Brandt Iron Works
SAN FRANCISCO, Cal.
Ransome & McClelland, Inc.
SEATTLE, Wash.
Washington Machinery & Storage Co.
SPOKANE, Wash.
General Machinery Co
SPRING LAKE, Mich.
W. H. Anderson Tool & Supply Co.
ST. LOUIS, Mo.
Lincoln Equipment & Materials Co., Inc
SYRACUSE, N. Y.
The Wheeler-Murray Co.
TAMPA, Fla.
Tampa Machinery Co
TOLEDO, Ohio
National Supply Co
TORONTO, Ontario
Clare Osborn Ltd.
VANCOUVER, B. C.
B. C. Equipment Co

Ransome Standard Building Mixers

WHITE ENTERS LOW PRICE LIGHT DELIVERY FIELD

Announcing Reduced Prices
Placing WHITE Transportation within
the Reach of Everyone

Model 15 ¾-1 TON CHASSIS		Model 20 1½ TON CHASSIS
$2150 NET	← OLD PRICES →	$2950 NET
$1545 F.O.B. FACTORY	← NEW PRICES →	$2125 F.O.B. FACTORY
$605	← SAVING →	$825

WHITE transportation is today within the reach of every field of business and industry. Because of the increasing demand for quality truck performance, The White Company announces a broadening of its merchandising policy resulting in reductions in the prices of two models of four-speed light delivery trucks.

White is extending its area of transportation service—entering a wider field of fast, light delivery and establishing a complete range of truck capacity and price never before equaled by any high-grade truck manufacturer.

The name and reputation of White is insurance of continued high quality. These are the same high-grade White Trucks—at lower prices—the same standard specifications. For years the four speed White Model 15 and Model 20 have been the outstanding quality trucks in the light delivery field. No truck of the same size or capacity (¾-ton, 1-ton and 1½-ton) compares with them in dependable, low-cost transportation over hundreds of thousands of miles.

Throughout the chassis construction of the White Model 15 and Model 20 you will find inbuilt quality, ruggedness and exclusive White mechanical features that are not duplicated in any other light delivery truck at any price.

THE WHITE COMPANY, CLEVELAND
Please send me complete specifications, etc., covering White Light Delivery Trucks at reduced prices.

NAME .....
FIRM .....
STREET .....
CITY .....

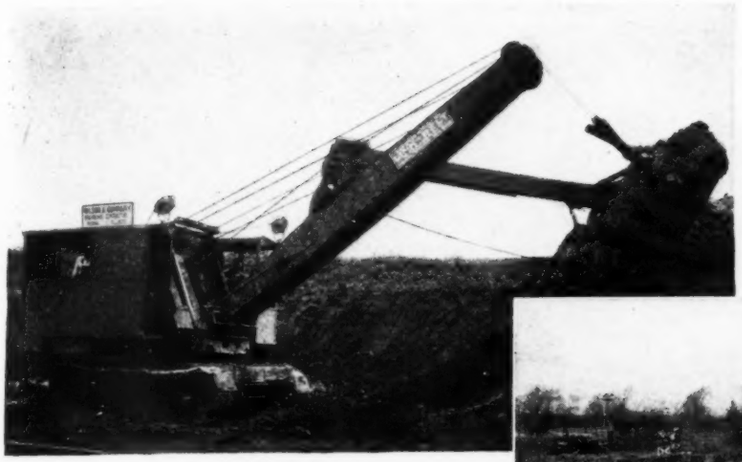
Successful Methods

Terms—Operators wishing to buy trucks on terms can do so

THE WHITE COMPANY, CLEVELAND

WHITE TRUCKS
and WHITE BUSSES

Are You Getting as Much Yardage as These Machines Will Give You?



The Link-Belt GRIZZLY Loader

The Link-Belt SHOVEL

IN six weeks a Link-Belt Trench-shovel dug 8,000 lineal feet of 14 ft. trench—

Without the aid of a single blast another Link-Belt Shovel dug 6,000 cu. yds. of porous rock in four weeks' time.

In five months of continual operation a Link-Belt Drag-line cost but $6.00 for repairs.

One user reports saving $5,000.00 with a Link-Belt Shovel in six weeks' work—

Yes—these are just a few of the facts—will be glad to send you more—write the nearest office.

WITH a "Grizzly" Loader, Louis Hoffmann, of Grafton, Wis., operates a gravel pit and truck with one man—even so—the costs of operating took a decided tumble—

Another owner writes of saving over $100.00 per day handling sand, gravel and stone—he keeps his trucks on the move—

Those who use the "Grizzly" for batching, claim it has no equal.

The "Grizzly" will serve your material handling needs at a saving unapproached by any other method—Write for a copy of Book No. 924.

Some territories still open for Agents. Get our proposition.

3037

LINK-BELT COMPANY

Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains and Machinery

CHICAGO, 300 W. Pershing Road

Ashland, Ky. . . . . 100 W. Winchester Ave.
V. P. Dalmas & Co., ... 511 Haas-Howell Bldg.
Atlanta . . . . 229 Brown-Marx Bldg.
Birmingham, Ala. . . . 1103-4 Statler Bldg.
Boston . . . . . 554 Ellicott Square
Buffalo . . . . .

Cleveland . . . . 527 Rockefeller Bldg.
Denver . . . . . 520 Boston Bldg.
Detroit . . . . . 5938 Lindsdale Ave.
Huntington, W. Va., Robson-Prichard Bldg.
Kansas City, Mo., R. 436, 1002 Baltimore Ave.

INDIANAPOLIS, 200 S. Belmont Ave.

Louisville, Ky. . . . 349 Starks Bldg.
Minneapolis, Minn. . . . Link Belt Supply Co., 418 S. Third St.
New Orleans, 504 New Orleans Bank Bldg.
Whitney Supply Co., Ltd., 733 Tchoupitoulas St.

PHILADELPHIA, 2045 Hunting Park Ave.

New York . . . . 2676 Woolworth Bldg.
Pittsburgh . . . . . 335 Fifth Ave.
St. Louis . . . . . 3638 Olive St.
Wilkes-Barre, 826 Second National Bank Bldg.

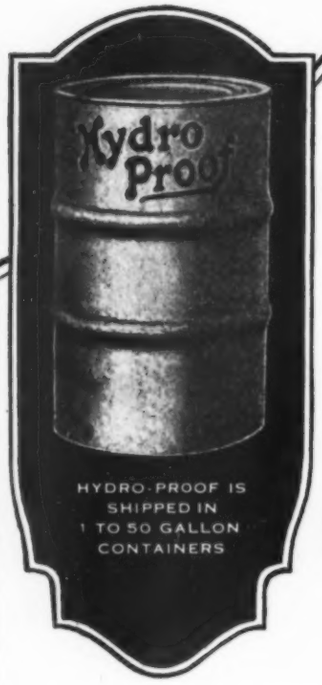
H. W. CALDWELL & SON CO.:—Chicago, Western Ave., 17th and 18th Sts.; Dallas, Texas, 1221 Mercantile Bank Bldg.; New York, 2676 Woolworth Bldg.

LINK-BELT MEESE & GOTTFRIED CO.:—San Francisco, 19th and Harrison Sts.; Los Angeles, 361-369 S. Anderson St.; Seattle, 820 First Ave., S. Portland, Ore., 67 Front St.; Oakland, Calif., 526 Third St.

In Canada—LINK-BELT LIMITED—Toronto and Montreal.

LINK-BELT

Shovels and Loaders



When the Budget Compels $1 to do the Work of $2

The increased cost of production, caused by trucking over rough floors, is a matter of grave concern to those charged with plant maintenance. The maintenance budget does not always permit the laying of new floors.

When our 1.2.3. Hydro-Proof Floor Resurfacer was presented to the industrial world, the problem of floor resurfacing was solved. Hundreds of America's leading industries have already saved tens of thousands of dollars by the Hydro-Proof process. They have found in Hydro-Proof a method for resurfacing floors that is permanent, economical and convenient.

Whether your present floors are concrete, brick, asphalt or wood, the Hydro-Proof method will permanently resurface them, at less than one-half the cost of other methods. Hydro-Proofed floors give a longer wearing surface than new floors, and are dustless, water, acid, alkali and spark proof. They reduce trucking expenses to the minimum. Their resiliency greatly lessens industrial fatigue, and increases to the maximum, your employees' efficiency.

Let us show you how we can materially reduce your production expense, by sending you working samples of our 1.2.3. Hydro-Proof Floor Resurfacer, without expense or obligation to you.

THE ASPHALT PRODUCTS CO.

704 Free Street, Syracuse, N. Y.

MAIL THIS COUPON

THE ASPHALT PRODUCTS CO.,
704 Free St., Syracuse, N. Y.

You may send me working samples of HYDRO-PROOF. I understand this is to be sent me free of charge and without placing me under any obligations.

Company .....

Individual .....

Address .....

Below—Cleveland CD3 Clay Digger enlarging trench for installation of fire hydrant.

Are you worried about costs?

The contractor who uses "Cleveland" Air Tools is *never* worried about costs. "Cleveland" Paving Breakers, for instance, make him sure of a good profit in ripping up pavement and hard roads, breaking up frozen ground, cutting manholes, enlarging trenches, tearing down walls or what not. They save over half the labor and at least three-fourths of the time on such work.

Backfill Tamper
It rams ten times as fast as by hand, and does a better job.

They are nicely balanced, powerful, convenient in operation and economical in air consumption. A recent report tells of one efficiently operated on 30 cubic feet of free air per minute.

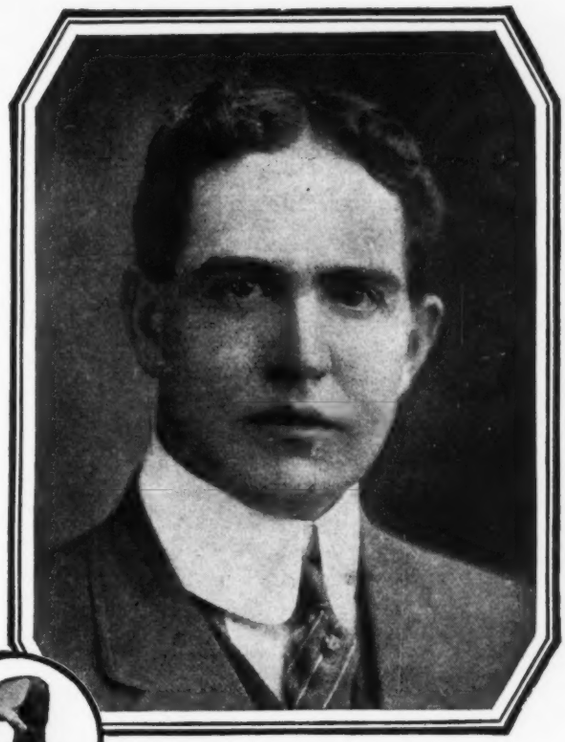
Find out about these great cost-reducing air tools.

Ask for Bulletin No. C-6-A

The CLEVELAND ROCK DRILL CO.
3734 East 78th Street, Cleveland, Ohio

CLEVELAND ROCK DRILLS

"We give every bridge . . . every roadway . . . *this lasting protection*"



GEORGE S. CHANEY, *County Engineer of Washington County, with offices at Washington, Pa. Mr. Chaney has been in charge of city and county construction engineering for more than twenty years, and many of the finest concrete roads and bridges in Washington County were built under his supervision*

"WHEN I tell you that there are more than 450 bridges in this county," said George S. Chaney, County Engineer of Washington County, Pa., "and that every modern concrete bridge is adequately protected against expansion and contraction by means of expansion joints, you'll realize the importance we attach to its use.

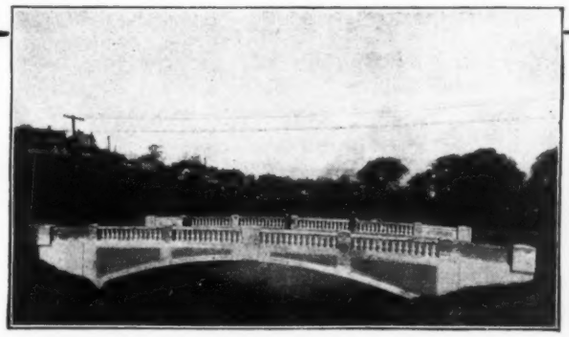
"We use expansion joints in all our road work, too—in fact, this was the first county in the state to build concrete roads with expansion joints.

"In our bridges, however, you do not actually see all the expansion joints. But they're there, just the same—protecting, though concealed, against temperature and moisture stresses in the concrete. Take this Wylie Avenue Arch: expansion joints are molded into the posts at the hand railings and on each side where the curb adjoins the road bed."

The splendid bridges and modern concrete roads throughout Washington County, Pa., are safeguarded indefinitely against cracking and deterioration by Carey Elastite Expansion Joint. This material adds but a fraction to the cost of construction, but it effects a substantial saving in the cost of maintenance. Write for full details.

Carey Elastite Expansion Joint consists of a heavy body of fibrous asphaltic compound, sandwiched between two layers of asphalt-saturated felt. Will not flow in hot weather or become brittle in cold weather. As easily handled as a board.

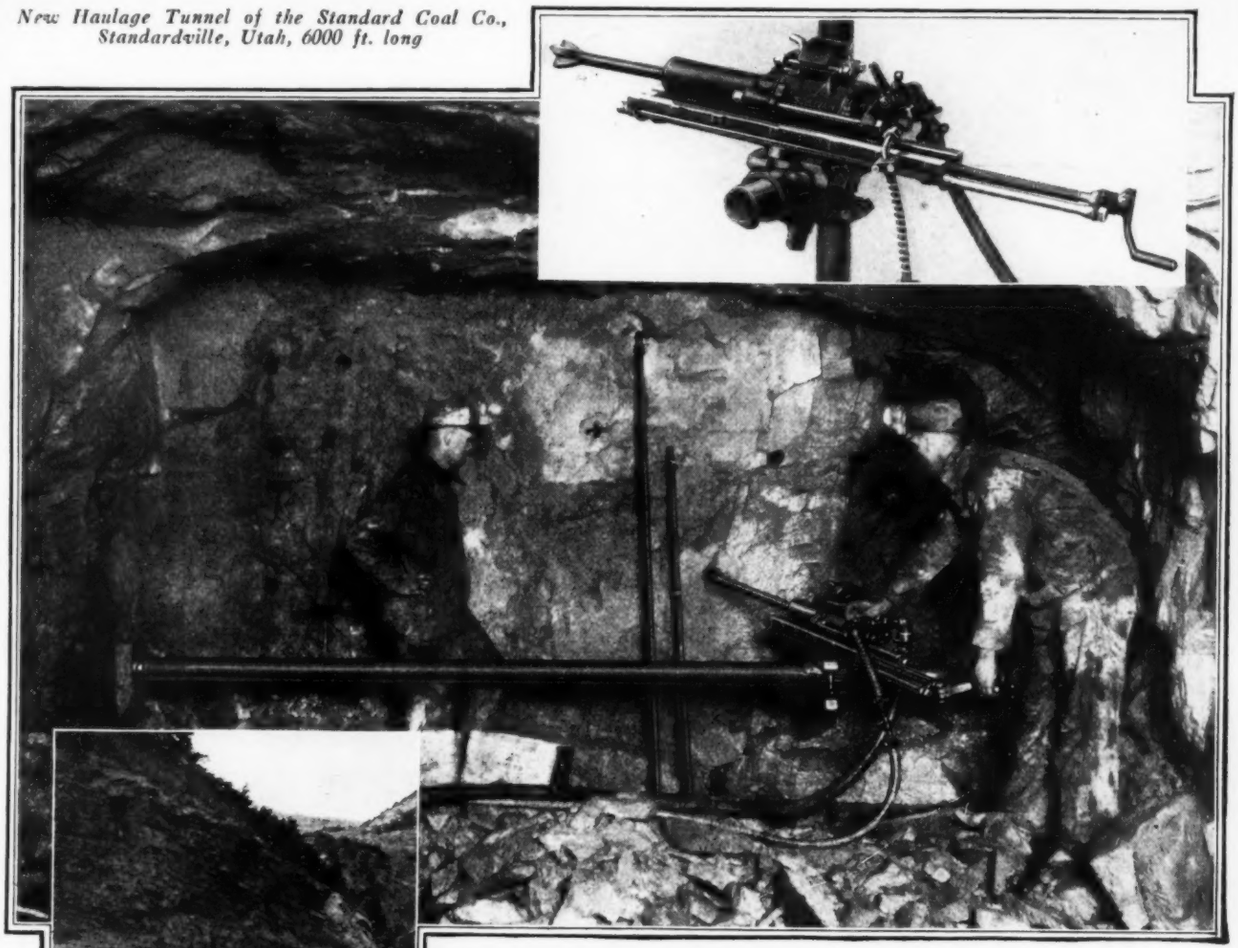
THE PHILIP CAREY COMPANY
***Lockland*, Cincinnati, Ohio**



The Wylie Avenue Arch, Chartiers Creek, Washington County, Pa., constructed in 1926. It has a 60-foot span, 23-foot roadway, and two 6-foot sidewalks.

Carey Elastite EXPANSION JOINT

New Haulage Tunnel of the Standard Coal Co., Standardville, Utah, 6000 ft. long



"Where's the Other Drill?"

An 8 x 10 tunnel heading, with one drill at work at one rib and a round of holes partly finished, loaded and wired, but no second drill in sight.

"Where's the other drill?" asked the photographer.

"Other drill H — !" said the foreman, "what do we want another drill for? We are finishing the round in half a shift now, with this Sullivan Water Drifter, and putting in 22 to 28 6-ft. holes."

Incidentally the formation is hard lime rock, considerably broken and faulted, as you can see from the surface picture. The drill is the Sullivan Water Drifter, weighing 145 pounds. The Contractor on the job is E. M. Hardy. The total length of the tunnel will be 6000 ft., 4000 of it is being driven from the outside and another crew is at work on the inside. Their end of it will be 2000 ft. long.

Sullivan Water Drifters

are just about the fastest tunneling drills that you can pick out. In addition to that they are light, easy to handle, and being made of the best materials and by manufacturing methods which have been perfected in thirty-five years of rock drill manufacture, they are always on the job and cost but little for repairs.

When you get that next tunnel job, equip it with Sullivan Water Drills and keep your footage up and your costs down.

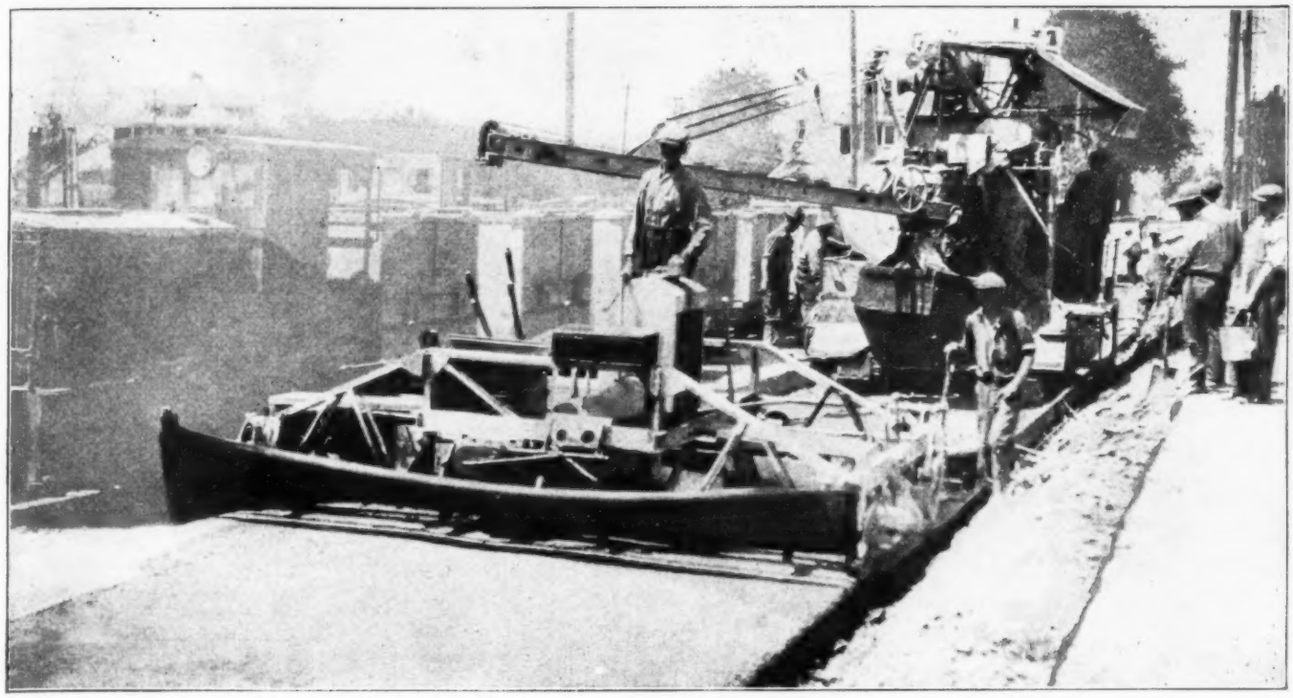
Ask for Bulletin No. 3881-E

There's a Sullivan Drill for every rock drilling job.

SULLIVAN MACHINERY COMPANY

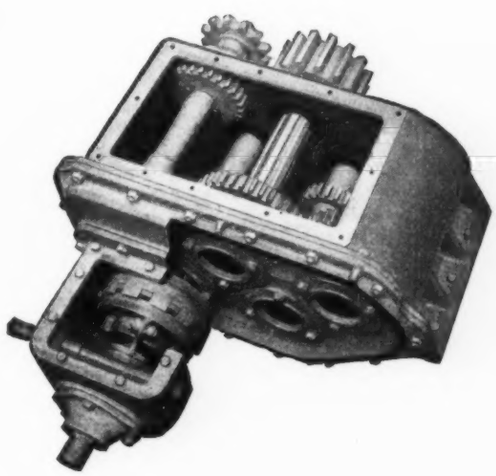
168 SOUTH MICHIGAN AVE. CHICAGO, ILLINOIS, U. S. A.

NEW YORK PITTSBURGH ST. LOUIS SAN FRANCISCO



One of the 6 type "C" Lakewood Finishing Machines owned by the Board of County Commissioners of Wayne County, Michigan.

Only with the Lakewood Finisher do you get the automotive type of transmission



It doesn't take any argument to prove that you'll get better service from a transmission of a finishing machine if you use high carbon steel, heat treated gears and shafts mounted on Timken Bearings, all enclosed and running in an oil tight case.

That's the type of mechanical construction you find in the Type "C" Lakewood Screed and Tamper. That's why you get better service from Lakewood Machines.

It will pay you in actual dollars and cents to get the complete details of this machine. Write for Bulletin 47-S.

The EXPORT OFFICE: 30 CHURCH ST., NEW YORK CITY — CABLE ADDRESS: BROSITES

LAKEWOOD ENGINEERING CO.

CLEVELAND, OHIO

A FURTHER INTRODUCTION
TO THE
LOWELL
Reversible Ratchet Wrench

A WRENCH FOR EVERY PURPOSE
A SIZE FOR EVERY NEED

THE BRIDGE BUILDERS PATTERN

No.	Length of Handle	Approx. Weight	Size of Opening, Inches	
			Square	Hexagon
1	3 ft.	11 lbs.	1, 1 1/8, 1 1/4, 1 3/8, 1 7/16	1 1/16, 1 1/4, 1 7/16, 1 5/8
2	3 ft.	14 lbs.	1 1/4, 1 1/2, 1 5/8, 1 13/16, 2	1 13/16, 2, 2 3/16, 2 3/8
3	3 ft.	23 lbs.	2, 2 1/4, 2 3/8, 2 1/2	2 3/8, 2 5/8, 2 3/4, 2 15/16, 3 1/8
4	3 1/2 ft.	32 lbs.	2 1/2, 2 3/4, 3, 3 1/4	3 1/2, 3 7/8
5	3 1/2 ft.	40 lbs.	3 1/4, 3 1/2, 3 3/4	4 1/4, 4 5/8

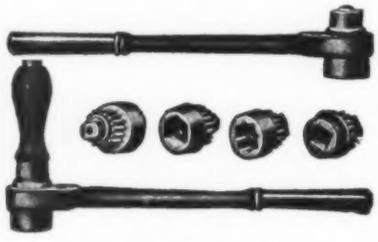
Reversible? Yes,—all LOWELL WRENCHES are reversible. Note the shipper near the Head. Special extensions can be added if desired so as to operate the shipper from the end of the handle.

Pawls,—designed for Service. Faces of Pawls range from 3/16" x 3/4" in No. 1 size to 1/2" x 1 1/8" in No. 5 size.

Finished in black enamel paint.

Capacities range from 1" to 3 3/4" in square opening and 1 1/16" to 4 5/8" in hexagon opening.

The above pattern and the 1916 pattern shown last month are the so called "gear" types. Next month we will introduce you to the "socket" type as seen in the Lag Screw pattern below.



LOWELL
WRENCH CO.
54 Commercial St.
WORCESTER, MASS., U. S. A.

WHY WAIT

Ask for Catalog M
and Get the Complete Story

NOW

A small Sauerman Cableway is shown above, making the excavation for a municipal reservoir. This same machine was later equipped with a bottom-dump bucket and used to place the concrete for the floor, walls and roof of the reservoir.

Digging, Conveying and Elevating as high as 300 cu. yd. per hour in one Operation

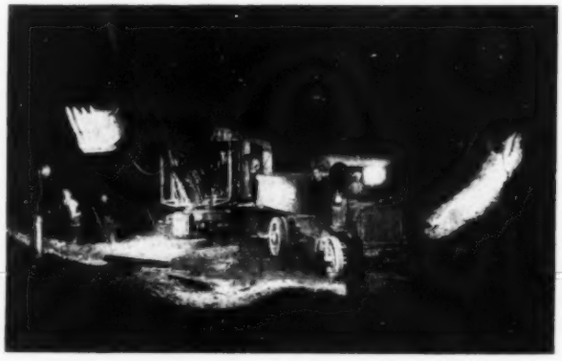
The Sauerman Slackline Cableway is built to handle long range excavating—fast and at the lowest possible cost.

It digs, conveys and elevates. It works well in hard ground, under water, or in wet, sticky material. It is operated by one man. And it shows a lower cost per yard than any other machine of similar capacity operating over the same distance.

Our new booklet, **Excavating For Profit,** can show you more about the speedy, cost-cutting work of the Sauerman Slackline Cableway. **Send for a copy today. There is no obligation.**

SAUERMAN BROS., INC.
480 S. Clinton St., Chicago

Carbic
FOR PORTABLE LIGHTING



The increasing popularity of Carbic Lights is largely credited to the fuel: Carbic Cakes, compressed forms of calcium carbide.

These compact "bricks of gas" insure a clear, white, penetrating light without fuss, muss or waste.

Write for Complete Catalog

CARBIC MANUFACTURING CO.
NEW YORK—DULUTH, MINN.—CHICAGO
GENERAL OFFICE
CARBIC PRODUCTS STOCKED IN OVER 75 CITIES

One Inexpensive Device for Dozens of Jobs

Send the coupon below for more information about this little device. Handy-Andy is the Pulling Jack of all trades. Contractors, street repair departments, water departments, mines, oil producers, refiners, gas companies, light and power companies, drainage boards, factories, dredging companies, road builders—all find him a time and labor saver on scores of jobs.

10 to 40 tons line pull

Handy-Andy is portable, compact and light. Works on a ratchet principle like a lifting jack. One man with Handy-Andy Jack replaces gangs of men on many jobs and saves tying up big, expensive equipment. Simple to operate, little to get out of order. Pays for itself in a very short time.

Spot Cars

ONE man with Handy-Andy spots cars faster than several men with bars. Moves transfer cars, coal cars, gondola cars, and freight cars.

Besides the uses illustrated here Handy-Andy is used also for binding pile clusters, installing culverts, demolition and wrecking, moving houses and tanks, sinking and pulling well casing, pulling bridge floors, setting big valves and meters, pulling old piling, loading and unloading heavy machinery, dock and bridge construction, etc.

Pull Trees and Small Stumps

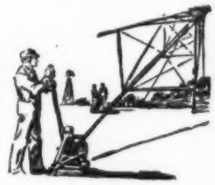
Parks development contractors, road builders — all find Handy-Andy a money saver on this kind of work.

Pull Sheet Piling

After the crane has gone use Handy-Andy to yank out the sheet piling. Pulls all kinds of piling.

Hoist Heavy Towers

Handy-Andy enables the operator to hoist heavy towers with perfect control over them at all times.

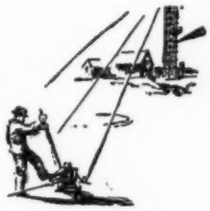


Move Heavy Machinery

Factories, contractors and riggers find Handy-Andy an invaluable piece of equipment for this work because of its tremendous capacity.

Tighten Guy Lines Easily

This powerful little tool insures rigidly tight guy lines and cables on aerial tramways with a few ratchet movements of the handle.



String Transmission Wires

An invaluable tool for tightening all kinds of lines on line construction and in overhead departments.

Yank Out Stalled Trucks

Every operator of motor fleets needs a Handy-Andy on his emergency car.

Pulling Pipe and Closing-up Pipe Sections

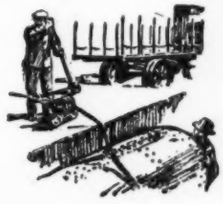
Handy-Andy is just the tool for pulling used pipe and closing up aqueduct and heavy pipe sections.

For Conduit Work

Because of its compact size and shape Handy-Andy can be used in inaccessible places. The tool for pulling out and replacing grounded cable.

Pull Heavy Forms Quickly

Handy-Andy is a convenient, powerful, compact tool for form removal on all classes of work in crowded quarters.



Move and Set Boilers

The automatic reverse on Handy-Andy makes it possible to have absolute control of heavy equipment when lowering.

Move Barges Easily

No need to tie up other expensive equipment moving heavy barges into slips or to unloading shovels.

Manufactured by

JOHN WALDRON CORPORATION

New Brunswick, N. J.

(Est. 1827)

Reg. U. S. Patent Office

HANDY-ANDY

Junior PULLING Jack

John Waldron Corporation, New Brunswick, N. J.

Please send me prices of Handy-Andy Pulling Jack and bulletin showing rigging.

I am interested in using it for.....

Name .....

Firm .....

Address .....

THE EXPLOSIVES ENGINEER— FORERUNNER OF PROGRESS

The title of this advertisement is also the title of a motion picture film that illustrates the part played by men who move materials with explosives in the great industrial undertakings of our times. It shows how engineering methods have transformed blasting from an uncertain, hit-or-miss operation into a science based on mathematical calculations. It illustrates the opportunities in this newest branch of the engineering profession.

More than this: it takes you behind the scenes in the great testing laboratories maintained by the United States Bureau of Mines and by one of the largest manufacturers of explosives, and shows you the exacting care with which explosives are tested in order that the tools of the explosives engineer may be as dependable as his figures.

"The Explosives Engineer—Forerunner of Progress" is contributed to the cause of industrial education. Together with another new Hercules film it will provide an evening of dramatic and instructive entertainment.

The other new film dispels the mystery that has heretofore surrounded the manufacture of electric blasting caps. This film clearly shows the manufacture and features of the Hercules Electric Blasting Cap. It illustrates the marked advantages of the larger diameter cap shell, adequate water-proofing, and platinum bridge.

Upon request, either or both of these films will be loaned without charge. Please let us know the date on which you wish to make your showing and we shall forward one or both, prepaid. Kindly use the coupon.

HERCULES POWDER COMPANY

(INCORPORATED)

Dynamite—Permissible Explosives—Blasting Powder—Blasting Supplies

Sales Offices:

ALLENTOWN, PA.
BIRMINGHAM
BUFFALO
CHATTANOOGA
CHICAGO
DENVER
DULUTH
HAZLETON, PA.
HUNTINGTON, W. VA.
JOPLIN, MO.
LOS ANGELES
LOUISVILLE
NEW YORK CITY
NORRISTOWN, PA.
PITTSBURG, KAN.
PITTSBURGH
POTTSVILLE, PA.
ST. LOUIS
SALT LAKE CITY
SAN FRANCISCO
WILKES-BARRE
WILMINGTON, DEL.

HERCULES POWDER COMPANY,
959 King Street, Wilmington, Delaware
I should like to show your film (or films):

☐ "The Explosives Engineer—Forerunner of Progress."
☐ "The Manufacture of Electric Blasting Caps."

on_____ before _____

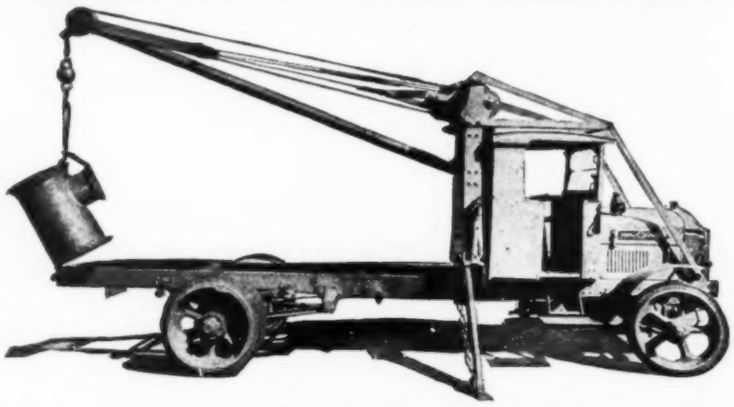
Name_____

Position_____

Address_____

AUTO TRUCK DERRICK

HOISTS--LOADS--DIGS



CONVERT your truck into a TIME and LABOR saver with this derrick. It will serve many purposes if mounted on a chassis of sufficient tonnage.

With HOOK or CHAINS, it lifts pipes, girders and other solid objects. With LAZY TONGS it handles barrels, bales, boxes, crates, etc. With CLAM SHELL or ORANGE PEEL bucket it loads stone, gravel, sand, coal and other soft or loose material.

ONE OPERATOR standing on truck has absolute control over the load and its placement.

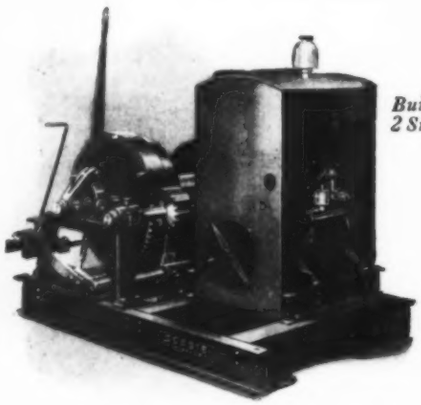
The construction of this derrick is such that it can be knocked down, packed compactly and shipped anywhere. Derrick has large factor of safety over specified capacity. Protection from breakage due to overload is insured by patented slipping clutch set to lift slightly in excess of rated capacity.

Operation of clam or orange peel bucket is simple, any unskilled workman can operate this machine and it will also do the work of vertical hoists on trucks for raising and lowering body.

Prices and fuller details will be sent on request. Certain territory still available for first class Distributors. Correspondence invited.

ATIA CORPORATION, 150 Broadway, New York, U.S.A.

Also ATIA Ash and Garbage Removal Bodies



Built in 2 Sizes

We know your hoisting problems! . . . this hoist will help solve them

This is an eight horse power unit that fits all your requirements for a rugged hoist for light work.

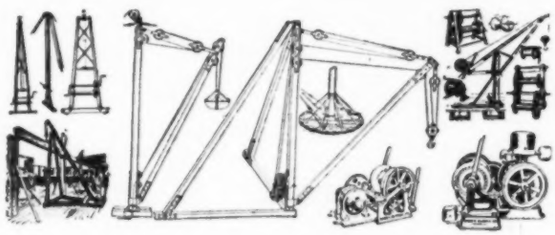
Equipped with a single friction drum fitted with foot brake, ratchet and pawl and is direct geared to a two-cylinder hopper-cooled engine. Complete in all details.

Built in 2 sizes: one with a speed twice that of the other and a single line lifting capacity one half that of the other.

DOBBIE FOUNDRY AND MACHINE CO.
Niagara Falls, N. Y.

DOBBIE EQUIPMENT

PICK UP CARTS — DERRICK FITTINGS
SULKY DERRICKS — WINCHES, ALL TYPES



Derricks—
Hoists—
Winches—

The name Sasgen has been identified for many years with large and small building construction.

All sizes up to 10 Ton

Send for Circular S

Sasgen Derrick Co.
3101 W. Grand Ave.
Chicago

New York:
130 W. 42nd St.

Gov. Al Smith

LOOK AT AL'S SMILE *as he sits behind the levers of a P&H breaking ground for the new state office building at Albany, N. Y. He's smiling because the P & H handles so easy.*

There are two P & H Shovels on this job owned by Marie K. Laporte. The general contractor for this building is the Seglin Construction Company of Buffalo, New York.

Breaks Ground with a P&H

HERE are two go-getters—Governor Al Smith of New York and the P&H Shovel of Milwaukee.

There is no question about Al's popularity and as for P&H popularity, well, the whole country is going P&H.

Contractors purchased as many P&H gasoline shovels the first half of February, 1927, as they did in the whole of February, 1926, and February, 1926, was a record month.

TODAY THERE ARE MORE P&H GASOLINE DRIVEN SHOVELS IN SERVICE THAN ANY OTHER MAKE — *there are lots of reasons*

Bulletin 61-X is the most complete booklet on Gasoline Excavators ever published. It describes fully the many P & H features which guarantee longer service—bigger dividends on your investment in equipment. Write for copy today.

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WAREHOUSES AND SERVICE STATIONS
Philadelphia, Memphis, Jacksonville, San Francisco, Los Angeles, Seattle, Miami

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Agrabatchers


Road Forms


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Sidewalk Forms


Joint Machines


Finishing Machines


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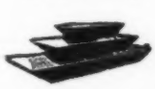
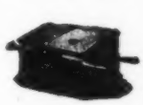
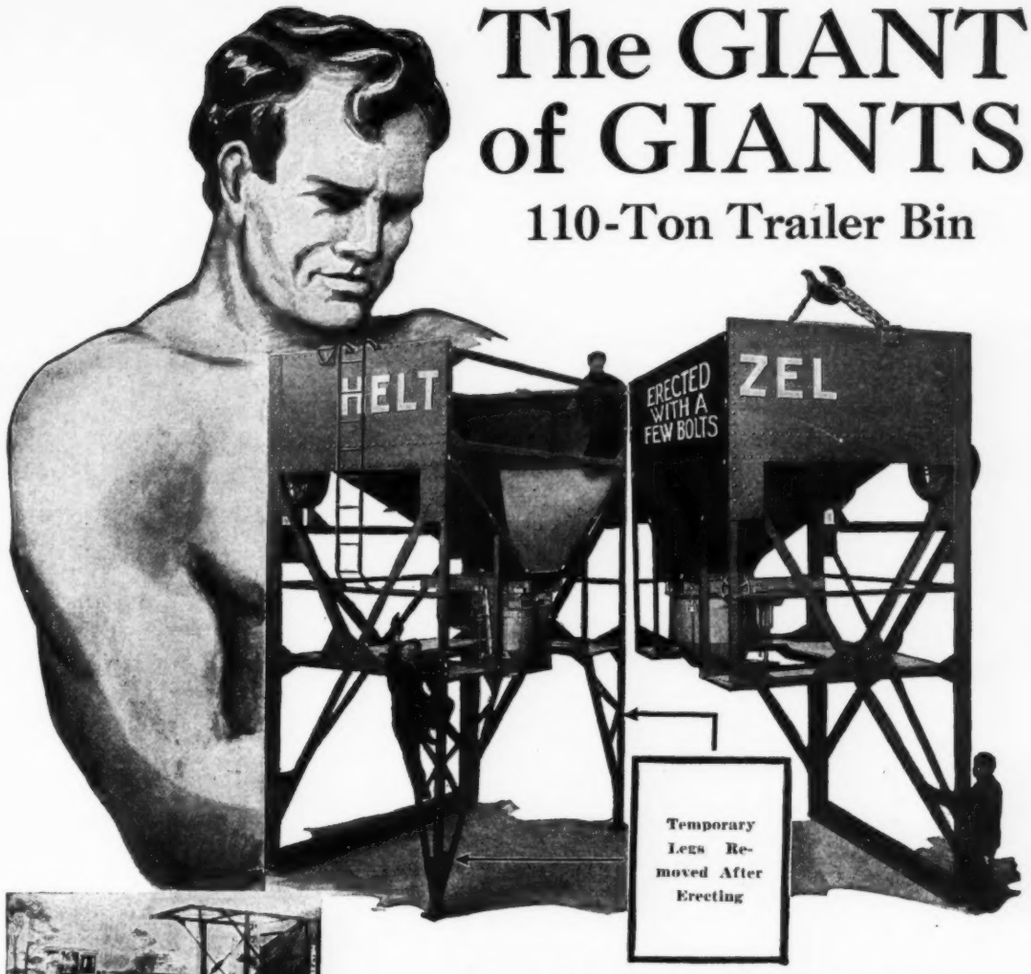
Car Unloaders


Mixing Boxes


Tool Boxes

The GIANT of GIANTS

110-Ton Trailer Bin



80- and 110-Ton Bins Transported in Two Sections

35- and 55-Ton Bins Transported in One Piece

The HELTZEL 110-Ton Twin Trailer Bin, shown above, is truly the giant of giants.

All HELTZEL Trailer Bins are of heavy reinforced riveted construction throughout—the large capacity bins shown at the right are 11½-3″x18′-0″, 20 feet high in the 80-ton size and 22 feet high in the 110-ton size—heavy 8″x8″ steel angle legs braced with 4″x4″ angles—HELTZEL Trailer Bins in all sizes from 35-ton to 110-ton capacity are built in every detail like sky scrapers and yet are disassembled, moved and erected in minutes where other types take hours and days.

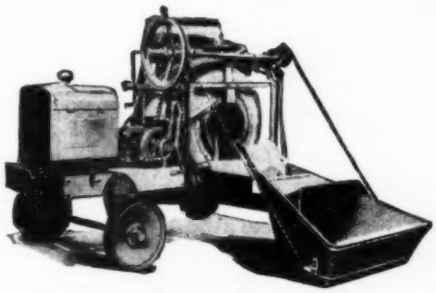
HELTZEL 80 and 110-Ton Trailer Bins are erected in two halves (one of which has temporary legs which are removed after erection)—made ready for use by the tightening of a few large bolts—as strong and rigid as if they came to you in a single section, these giant trailer bins solve the contractors' most perplexing material handling problems.

Equipped with HELTZEL Agrabatchers for measuring aggregate either by volume or automatically by weight—the former operated by a single wheel control with a minimum of six batches per minute—the latter a standard modified beam of scale with two point suspension and equalizer (will fill and weigh even if bin is not level)—added to these single wheel control adjustment of batchers if you wish and any number of other important improvements—is there a contractor in the whole country who won't want HELTZEL'S interesting new bulletin on trailer bins of all capacities? A copy will be sent you on request.

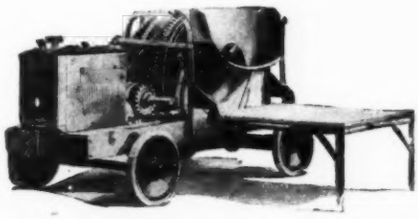
THE HELTZEL STEEL FORM & IRON COMPANY, WARREN, OHIO

HELTZEL

KOEHRING 7-S
DANDIE
Mixer



Engine completely enclosed in dust tight steel housing, sides of which raise for fullest accessibility to engine! Discharge operated from both sides of mixer.



Low charging platform, steel frame of which is hinged to mixer, and can be folded up against mixer-frame for hauling from job to job! Wide, capacious charging hopper makes charging easy.

Speed AND Strength

YOU'LL never get materials into the drum faster than you will with this speedy charging skip! Shoots the materials into the drum in one clean swift slide! No clogging! No need for pounding the skip, or shaking it against the frame!

Discharging! Watch it come! Starts on the instant—and keeps coming in big volume until the last shovelful is out of the drum!

You'll never get concrete out of a drum and into the forms faster than you'll do it with this Dandie!

Speed! If you want operating speed here it is—in a light mixer that you can take down into excavations or upstairs easily—with rubber tires that let you hitch it behind your car and get on the next job in a hurry!

Lightness, and operating speed—yes—AND STRENGTH! The Dandie *stands up* to all you ask of it! It's a high speed money-maker—and if you want to know why it is the Big remarkable value in the light mixer field, send back the coupon—today!

• • •

Dandie 7-S. Four-cylinder radiator cooled or two-cylinder hopper cooled motor. Enclosed transmission in oil bath, with shaft on roller bearings! Worm gear drive! Double gear drum drive! Automatic water tank. Rubber tires with Disc wheels or steel rimmed wheels. A.G.C. Standards. *Send* back the coupon.

A3996-I

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PAVERS, MIXERS—GASOLINE SHOVELS, CRANES AND DRAGLINES

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KOEHRING COMPANY, Dept. 17, Milwaukee, Wis.
Without obligation to me of any kind, send me free information about Koehring Dandie Mixer.

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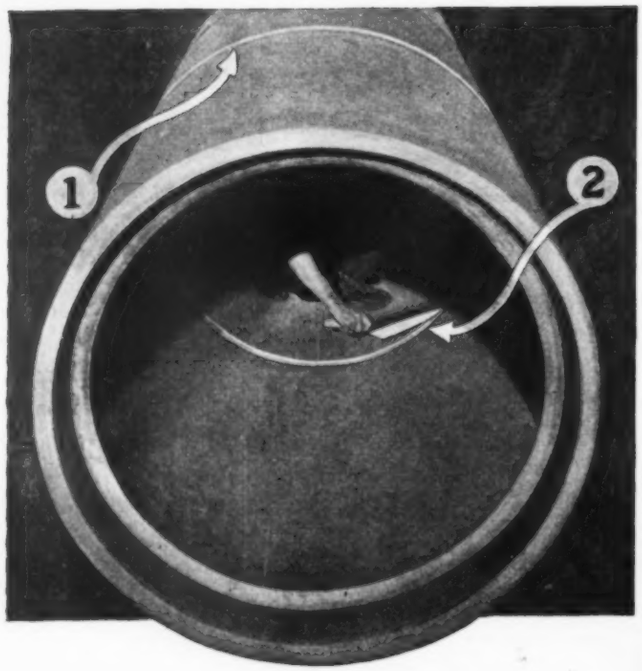


"Recessed Joints" are Easier to Seal

Strong—Smooth—Tight!

CONTRACTORS who use INDEPENDENT Reinforced Concrete Pipe can lay sewers quicker, better and at lower cost, because the "Recessed Joint" saves time, labor and materials. This joint is easier to seal because—

1. The *upper* half of the joint recess is filled with a stiff cement mortar OUTSIDE the pipe,
2. The *lower* half of the joint recess is sealed INSIDE the sewer. An important feature when laying pipe in wet, muddy or caving trenches.

This type of joint has other advantages. It is visible for inspection. It is permanently strong and tight —preventing leaking or infiltration. It speeds up the work—as soon as each pipe unit is fitted and aligned, joints can be sealed and trench back-filled. It also makes curved sewers easier to lay.

Before you bid on any concrete sewer work, let us give you quotations on INDEPENDENT Pipe. Our prices and service will interest you. Write or wire us.

INDEPENDENT CONCRETE PIPE CO.
209 N. West St.. Indianapolis, Ind.

INDEPENDENT
Reinforced Concrete Pipe

The Most Economical Pipe for PERMANENT Sewers

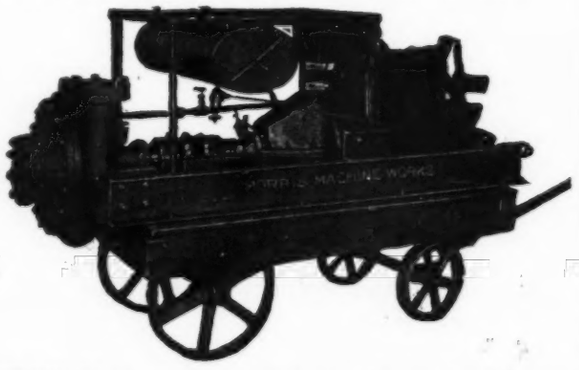
Pumps large quantities of foreign matter—

Humdinger diaphragm open discharge, or force pumps unwater the toughest of construction jobs. The one shown had pumped over five yards of sand when photographed. It is visible proof of its ability to meet every contractor's rigid requirements. Ball valves are just one of the distinctive features. Write for full information.

Ralph B. Carter Co.
New York, N. Y. Hackensack, N. J.

HUMDINGER PUMPS

To make your unwatering and water supply problems easier!



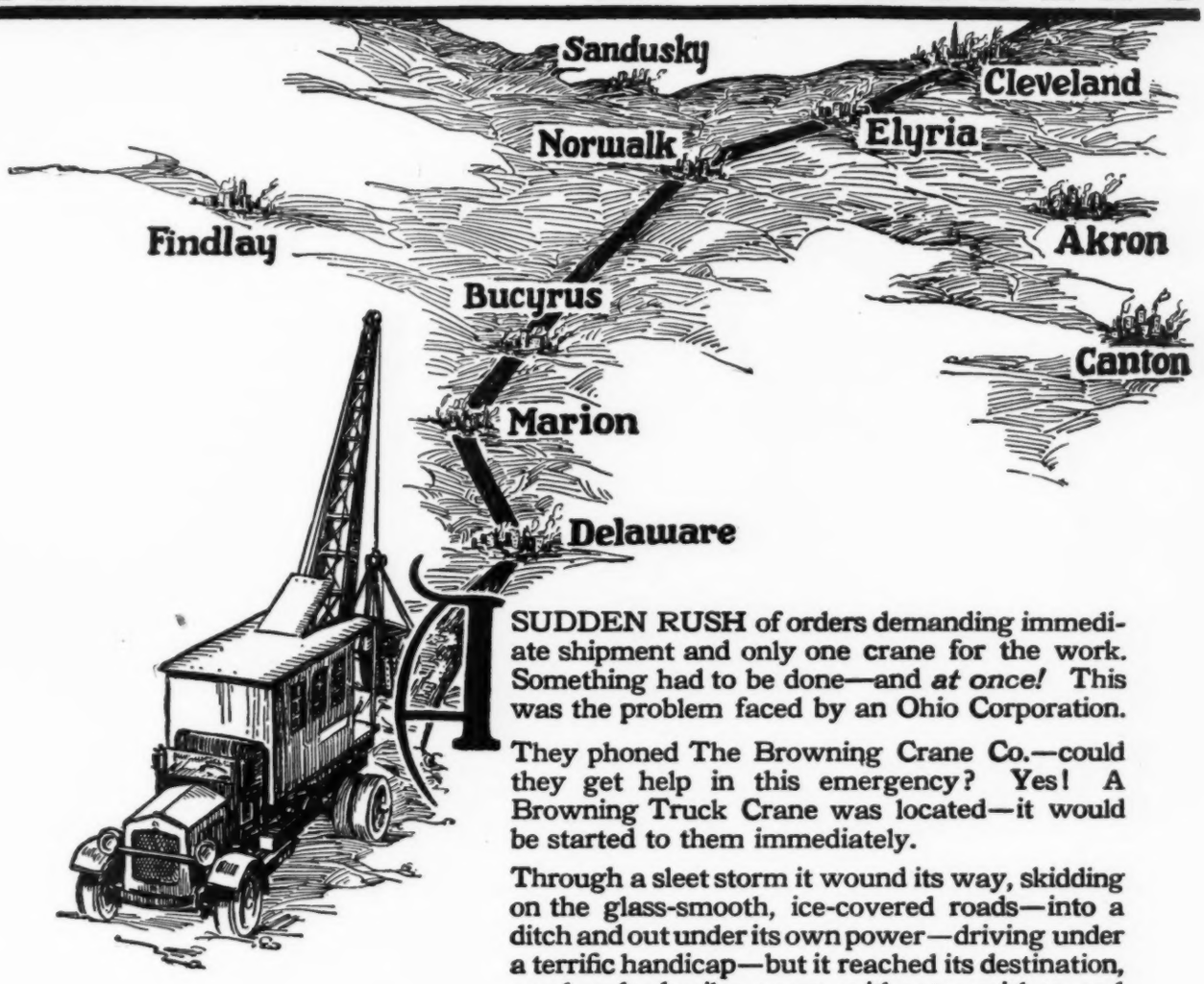
THIS Morris Portable All-Purpose Pump handles anything from clear water to floating dirt, sand and gravel, delivers 300 to 600 gals. per min., can be used for heads up to 50 ft., and is easy to cart from one job to another. For general water supply, unwatering excavations, sumps, etc., it can't be beat.

Write for literature about this and other sizes of Morris Pumps

MORRIS MACHINE WORKS, Baldwinsville, N. Y.

MORRIS
CENTRIFUGAL PUMPS

THE PATH OF PROFITS



SUDDEN RUSH of orders demanding immediate shipment and only one crane for the work. Something had to be done—and *at once!* This was the problem faced by an Ohio Corporation.

They phoned The Browning Crane Co.—could they get help in this emergency? Yes! A Browning Truck Crane was located—it would be started to them immediately.

Through a sleet storm it wound its way, skidding on the glass-smooth, ice-covered roads—into a ditch and out under its own power—driving under a terrific handicap—but it reached its destination, one hundred miles away, without a mishap and ready for work.

The way it handled their materials was an eye opener. Load after load without a hesitation. hour after hour without a rest.

What seemed to be a hopeless situation was easily remedied by a Browning Truck Crane, and the road from Cleveland to their plant proved a path of profits—to them and to the Browning Truck Crane owner.

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TRUCK CRANES

"Goodbye Yesterday—Hello Tomorrow"

Heat-Treated Blades, Buckets, Chute

defeat the abrasive wear of mixing—and preserve Rex speed throughout the season.

8-Second Discharge

provides original Rex high-speed action in the Rex 70 second cycle.

Governor Booster

speeds up the engine and the drum when the skip starts up—charging and discharging are faster.

6-Cylinder Engine

smothers the vibration common to many mixers—or you can get the Waukesha 4-cylinder job.

FOR 1927, Rex has built a *New* and *Even Greater* 27-E—a paver that takes one more long step away from "yesterday"—towards "tomorrow." This New Rex is built on the idea that a paving mixer should be real machinery. And it is built to give the contractor even more yards per day—for even more seasons. On these two points—and the lower-per-yard-costs that they produce—the New Rex holds an inviting story for you. Check the side columns for a few of the reasons why. And check the *1927 Rex Paver Catalogue* for the rest. If you're interested in new and better paver performance—send for your copy today.

Timken Bearings

in the speed reduction, drum rollers and other bearings reduce friction and upkeep.

7-Second Water

stops mixing penalties and water hold-ups—and it's accurate to the pound.

Unit Power Plant

incorporates engine and speed reduction into one compact high-speed unit.

Unified Action

can add 40 minutes to the paving day by handling charging and discharging at one time.

CHAIN BELT COMPANY, 764 Park Street, Milwaukee

REX PAVERS

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Erected for Blanchard and Calhoun
by The Foundation Company
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Once again The Foundation Company has proven its ability to furnish rapid yet reliable and economical service in the construction of the recently completed Forrest Hills-Ricker Hotel at Augusta, Georgia. Started in May 1926, this magnificent hotel was opened to guests for the Winter Season at the beginning of the New Year, less than eight months later.

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Portable Crane Profits

MAXIMUM Portable Crane profits are only possible when the supporting chassis is sufficiently rugged to stand up under the severest punishment.

If you will note the predominance of Macks on jobs where the going is hard, you will know why the Mack chassis is popular with portable crane owners.

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